

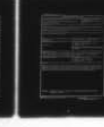
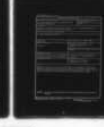
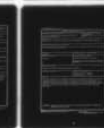
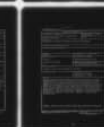
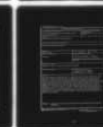
AD-A045 026

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG--ETC F/G 1/5
A BIBLIOGRAPHY WITH ABSTRACTS OF U. S. ARMY ENGINEER WATERWAYS --ETC(U)
AUG 77 M P MEYER, V DALE
PSTIAC-5-VOL-2-PT-2

UNCLASSIFIED

NL

1 of 5
AD
A045026

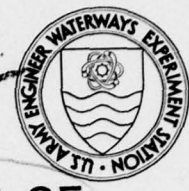


AD A 045026

14 PSTIAC-5-Vol-2-Pt-2



2
B.S.



PSTIAC REPORT NO. 5

**A BIBLIOGRAPHY WITH ABSTRACTS OF
U. S. ARMY ENGINEER WATERWAYS
EXPERIMENT STATION PUBLICATIONS
RELATED TO PAVEMENTS.**

Volume II

REPORT DOCUMENT PAGE DATA

**PART 2: TECHNICAL MEMORANDA, TECHNICAL REPORTS, PAVEMENTS
AND SOIL TRAFFICABILITY INFORMATION ANALYSIS CENTER REPORTS,
CONTRACT REPORTS,**

by

10 Marvin P. Meyer and Virginia Dale

Pavements and Soil Trafficability Information Analysis Center
and Technical Information Center
U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

12 425p.

11 Aug 1977

Approved For Public Release; Distribution Unlimited

DDC
OCT 6 1977
RECEIVED



AD No. _____
DDC FILE COPY

Prepared for U. S. Army Materiel Development and Readiness Command
5001 Eisenhower Avenue
Alexandria, Va. 22333

Under Project No. IE865803M761-05

16

17

409294

Destroy this report when no longer needed. Do not return
it to the originator.

PART 2

TECHNICAL MEMORANDA
TECHNICAL REPORTS
PAVEMENT AND SOIL TRAFFICABILITY INFORMATION ANALYSIS CENTER REPORTS
CONTRACT REPORTS

ACCESSION for	
NTS	Section <input checked="" type="checkbox"/>
DDG	B.H. Section <input type="checkbox"/>
MANUALS	<input type="checkbox"/>
DISPATCH	
DISPATCHED BY	
DATE	
A	

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
RESULTS OF CALIFORNIA BEARING RATIO TESTS PERFORMED ON UNDISTURBED AND REMOLDED SAMPLES OF SOIL OBTAINED FROM SERVICE BEHAVIOR TEST SECTION, BARKSDALE FIELD, LA.		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Preliminary Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
25 September 1943	19	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum - Unnumbered	
a. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
<p>The results of mechanical analyses, absolute specific gravity and Atterberg limits tests for these soils are shown on inclosure 1. CBR tests were required on undisturbed box samples of the limestone blend and low bearing clay gravel and remolded cylinder samples of these materials. (Remolded samples were placed in CBR cylinders at average water content and dry density of undisturbed box samples.) The results of these tests together with those obtained from additional CBR tests performed on undisturbed high bearing clay gravel are shown on inclosure 2. The results of CBR tests performed on undisturbed and remolded cylinder samples of sand, selected loam and subgrade (clay) are shown on inclosure 3. (Remolded samples were placed on CBR cylinders at average water content and dry density of undisturbed cylinder samples.) Information was desired on the variation of CBR with molded dry density and penetration surcharge for all soils except the limestone blend. The results of these special tests are shown on inclosure 4 to 15, inclusive.</p>		
KEYWORDS: California Bearing Ratio tests; Soil property measurements; [Barksdale Air Force Base, Louisiana]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 62, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
PERFORMANCE OF LATISTEEL AIRPLANE LANDING MAT DURING TRAFFIC TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
25 November 1944	25	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
8. PROJECT NO.	Technical Memorandum - Unnumbered	
9.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
9.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
Report covers the behavior of latisteel airplane landing mat under traffic tests on clay subgrade with a wheel load of 15,000 pounds, and on silt subgrade with wheel loads of 15,000 and 37,000 pounds. No base course was used on the test sections at either site. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat test sections before, during, and after testing. A complete set of notes made during tracking is also included as an appendix.		
KEYWORDS: Landing mats; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 63, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
PERFORMANCE OF WOVEN WIRE LANDING MAT DURING TRAFFIC TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
15 November 1944	44	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum - Unnumbered
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
<p>Report covers the behavior of woven wire airplane landing mat under traffic tests on clay subgrade, with and without base course, and on silt subgrade, without base course, with wheel loads of 15,000 and 37,000 lb. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat test sections before, during and after testing. A complete set of notes made during tracking is also included as an appendix.</p>		
KEYWORDS: Steel landing mats; Traffic tests		

DD FORM 1473

NOV 55 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2b. GROUP			
3. REPORT TITLE			
PAVEMENT FAILURE STUDY OF MORRISTOWN AIRPORT, MORRISTOWN, NEW JERSEY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (Last name, middle initial, first name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
15 January 1944		105	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum - Unnumbered	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314	
13. ABSTRACT			
<p>The U. S. Army Engineer Waterways Experiment Station, by authority of the Office, Chief of Engineers, has completed a thorough field and laboratory investigation of the factors contributing to the failure of this airport pavement. Failures were found to consist chiefly of a spongy, badly rutted surface, with displacement extending into the stabilized base. Observations indicated that this condition was due to the low stability of the tar-treated base directly below the wearing course.</p>			
KEYWORDS: Flexible pavement failures (Airfields); [Morristown Airport, Morristown, N. J.]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PERFORMANCE OF LAMINATED WOOD AIRPLANE LANDING MAT DURING TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE			
20 December 1944		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
		41	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Memorandum - Unnumbered	
C.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
Report covers the behavior of laminated wood airplane landing mat under traffic tests on clay and silt subgrades with the 15,000-lb and 37,000-lb wheel loads, and on silt subgrade with the 60,000-lb wheel load. The report covers methods of placing the mat and shows pictures and cross sections of the mat test sections before, during and after testing. A complete set of notes made during tracking is also included as an appendix.			
KEYWORDS: Traffic tests; Wood landing mats			

DD FORM 1473

NOV 66 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R E D		
Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.		
1. ORIGINATING ACTIVITY (Corporate author)		26. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		26. GROUP
3. REPORT TITLE		
PERFORMANCE OF GENERAL ELECTRIC AIRPLANE LANDING MAT DURING TRAFFIC TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF FIGS
15 December 1944	50	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum - Unnumbered	
9. PROJECT NO.	25. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
<p>Report covers the behavior of three types of General Electric airplane landing mat under traffic tests. Only one type was tested at the clay site. This was type 2, which was tested under the 15,000-lb wheel load. Types 1 and 2 were tested on silt subgrade, saturated and unsaturated with the 15,000-lb wheel load, and on an unsaturated silt subgrade under the 37,000-lb wheel load. Type 4 was tested on heavy compacted silt subgrade under the 60,000-lb wheel load. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat test sections before, during and after testing. A complete set of notes taken during the test is also included as an appendix.</p>		
KEYWORDS: Steel landing mats; Traffic tests		

DD FORM 1473

1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
PERFORMANCE OF STEEL PIERCED PLANK MAT WITH "T" CONNECTORS DURING TRAFFIC TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
20 December 1944	23	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum - Unnumbered	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
<p>Report covers the behavior of steel pierced plank airplane landing mat, equipped with new "T" connectors, under traffic tests on clay subgrade with a wheel load of 15,000 pounds, and on silt subgrade with wheel loads of 15,000 and 37,000 pounds. No base course was used in any of the tests. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat sections before, during, and after testing. A complete set of notes made during the test is also included as an appendix.</p>		
KEYWORDS: Landing mats; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PERFORMANCE OF THADEN ARTICULATED WOOD SLAT AIRPLANE LANDING MAT DURING TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
22 December 1944		27	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum - Unnumbered	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
Report covers the behavior of Thaden articulated wood slot mat under traffic tests on clay subgrade with a 15,000-lb wheel load and on silt subgrade with wheel loads of 15,000 and 37,000 lbs. No base course material was used on the test sections at either site. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the test sections before, during, and after testing. A complete set of notes made during the tests is also included in an appendix.			
KEYWORDS: Traffic tests; Wood landing mats			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 44, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PERFORMANCE OF IRVING GRID LANDING MAT DURING TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
9 January 1945	68		
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)		
	Technical Memorandum - Unnumbered		
9. PROJECT NO.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
<p>Report covers the behavior of Irving grid landing mat under traffic tests on clay subgrade without base course under the 15,000-lb wheel load and on silt subgrade with and without base course under the 15,000-lb and 37,000-lb wheel load. It was also tested on the silt subgrade with base course under the 60,000-lb wheel load. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat test sections before, during, and after testing. A complete set of notes made during the test is included as an appendix.</p>			
KEYWORDS: Landing mats; Traffic tests			

DD FORM 1473

1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Specify classification of title, type of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		7b. GROUP	
PERFORMANCE OF STANDARD HEAVY BAR AND ROD AIRPLANE LANDING MAT DURING TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
5. AUTHOR(S) (Last name, middle initial, first name)			
6. REPORT DATE			
31 January 1945		7a. TOTAL NO. OF PAGES	7c. NO. OF REFS
		52	
6a. CONTRACT OR GRANT NO.		6b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum - Unnumbered	
c.		6c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
Report covers the behavior of standard heavy bar and rod airplane landing mat under traffic tests with wheel loads of 15,000 and 37,000 lbs on clay and silt subgrades. It also covers the behavior of this mat tested under the 15,000-lb wheel load on both subgrades in the saturated condition. No base course was used in any of the tests. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections taken before, during and after testing. A complete set of notes taken during the test is included in the appendix.			
KEYWORDS: Landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 40, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		18. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		20. GROUP	
PERFORMANCE OF STANDARD PIERCED PLANK AIRPLANE LANDING MAT UNDER TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
6. AUTHOR(S) (First name, middle initial, last name)			
8. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
17 February 1945		191	
10. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum - Unnumbered	
c.		9b. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
<p>Report covers the behavior of standard steel pierced plank airplane landing mat under traffic tests on clay subgrade with wheel loads of 15,000 and 37,000 pounds, and on silt subgrades with wheel loads of 15,000-, 37,000-, and 60,000-pounds. Some sections contained base courses and some were tested with the subgrades in a saturated condition. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections taken before, during and after the test. A complete set of notes made during the test is included as an appendix.</p>			
KEYWORDS: Steel landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
2b. GROUP		
3. REPORT TITLE		
PERFORMANCE OF HEAVY BAR AND ROD AIRPLANE LANDING MAT WITH NEW CONNECTORS UNDER TRAFFIC TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 March 1945	177	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum - Unnumbered	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT		
<p>Report covers the behavior of heavy bar and rod landing mat with new connectors under traffic tests on clay and silt subgrades under the 15,000- and 37,000-lb wheel load, and on silt subgrade under the 60,000-lb wheel load. Some sections contained base course material, as shown in the tabulation on pages 2 and 3 of this report. The report covers weaknesses of the mat which were indicated by the test results and shows pictures and cross sections of the mat test sections before, during and after testing. A complete set of detailed notes made during the test is included as an appendix.</p>		
KEYWORDS: Landing mats; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 44, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and including annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE FIELD TESTS ON PREFABRICATED BITUMINOUS SURFACING		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE 20 July 1944	7a. TOTAL NO. OF PAGES 42	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 211-1	
a. PROJECT NO. c. Work Order DAC 3015	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY The Engineer Board Fort Belvoir, Virginia
13. ABSTRACT The purpose of these tests was to determine the general utility of PBS for use on airfields for light aircraft. The tests consisted of limited traffic repetitions on various types of fabric impregnated both with unfilled asphalt and with asphalt containing 40% filler, using 7,000-, 15,000- and 37,000-lb wheel loads operated at slow speeds. Braking and turning tests were also made. Condition of the surfacing material was studied under high and low temperatures and under different conditions of storage. In addition, certain tests on packaging for shipment were conducted. Careful observations were made concerning the pilot model of the Barber-Greene matlaying machine furnished with the surfacing material.		
KEYWORDS: Bituminous cements; Prefabricated surfacings; Traffic tests		

DD FORM 1473

NOV 68

REPLACES DD FORM 1473, 1 JAN 68, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and index annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
BEHAVIOR OF PREFABRICATED BITUMINOUS SURFACING UNDER PIERCED PLANK LANDING MAT DURING TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
11 January 1945		35	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 211-2	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		The Engineer Board Fort Belvoir, Virginia	
13. ABSTRACT			
<p>The purpose of these tests was to determine the effectiveness of prefabricated bituminous surfacing, when used in connection with pierced plank landing mat; (a) as a dustproof surfacing, and (b) as a waterproof surfacing. Tests included the construction of seven test sections, 30 ft wide by 35 ft long, and traffic-testing these sections with a 30,000-lb wheel load. The test sections were arranged in a single test lane as shown on plate 1. Tests were made to determine the relative effectiveness of different solvents in cold weather, and to ascertain whether PBS would adhere to steel or aluminum pierced plank. Photographic records, deflection cross-sections, and detailed tracking notes were taken during the test.</p>			
KEYWORDS: Bituminous cements; Landing mats; Prefabricated surfacings; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
BEHAVIOR OF PREFABRICATED BITUMINOUS SURFACING UNDER AIRPLANE LANDING MAT, DURING TRAFFIC TESTS WITH 20,000-LB WHEEL LOAD		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Supplementary to TM 211-2		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
25 May 1945	34	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 211-3	
9a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		The Engineer Board Fort Belvoir, Virginia
13. ABSTRACT		
<p>These tests were conducted for the purpose of determining whether PBS can be used under airplane landing mat of either the pierced plank type or the welded wire mesh type as a satisfactory dustproofing and waterproofing material for airplane landing strips, to accommodate wheel loads up to and including 20,000 pounds. The tests described in this report involved the construction of four test sections, 30 feet wide by 35 feet long, and subjecting these test sections to traffic under a 20,000-lb wheel load. Photographic records, settlement cross sections and detailed traffic notes were made during the test.</p>		
KEYWORDS: Bituminous cements; Landing mats; Prefabricated surfacings; Traffic tests		

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing entries must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
TESTS ON METHODS OF EMPLOYING PIERCED PLANK LANDING MAT WITH PREFABRICATED BITUMINOUS SURFACING			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
7. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
5 October 1945		51	
8. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
6. PROJECT NO.		Technical Memorandum No. 211-4	
c. Work Order No. DAC 3083		9b. OTHER REPORT NUM(S) (Any other numbers that may be assigned to report)	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314	
13. ABSTRACT			
<p>The purpose of these tests was to determine the most feasible method of employing standard steel and aluminum pierced plank landing mats in combination with PBS (Prefabricated Bituminous Surfacing) without destroying the waterproof characteristics of the PBS when subjected to 20,000- and 37,000-lb wheel loads. The tests involved the arrangement of eight combinations of mats in two similar traffic lanes; the rehabilitation of an old traffic test site; the placing of suitable base courses; the laying of pierced plank mats in conjunction with several cushioning materials on PBS, and traffic testing of one lane with a 20,000-lb wheel load and the other with a 37,000-lb wheel load. They also involved laboratory tests on sand-asphalt and soil-asphalt cushion materials and the keeping of complete written and photographic records as the tests progressed.</p>			
KEYWORDS: Aluminum landing mats; Bituminous cements; Prefabricated surfacings; Steel landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 44, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security Classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE SOIL MATTRESS CONSTRUCTION FOR RUNWAYS WITH PREFABRICATED BITUMINOUS SURFACING		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE 10 October 1945	7a. TOTAL NO. OF PAGES 35	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 211-5	
9. PROJECT NO. c. Work Order DAC 3076	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers U. S. Army Washington, D. C. 20314
13. ABSTRACT The purpose of this investigation was to determine the feasibility and practicability of compacting layers of soil between two layers of PBS (Prefabricated Bituminous Surfacing) to provide an adequate pavement for airports and other paved areas on subgrades of low CBR value which may be subjected to wheel loads up to and including 20,000 pounds.		
KEYWORDS: Bituminous cements; Compacted soils; Prefabricated surfacings; Runways		

DD FORM 1473

1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		22. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2. REPORT TITLE		25. GROUP	
SUBGRADE MOISTURE PROTECTION WITH PREFABRICATED BITUMINOUS SURFACING; SUPPLEMENTAL REPORT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Supplemental Report			
5. AUTHOR(S) (Last name, middle initial, first name)			
6. REPORT DATE		23. TOTAL NO. OF PAGES	24. NO. OF REFS
1 March 1946		7	
8. CONTRACT OR GRANT NO.		9. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 211-5A	
c. Work Order DAC 3076		10. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314	
13. ABSTRACT			
<p>The purpose of this test was to determine the effectiveness of FBS-lined (double thickness) side ditches in the prevention of capillary saturation of the subgrade when the side ditches remain filled with water. Preparation for this test involved the construction of a test section 100 feet long with a crown width of 30 feet and with V-ditches 2.5 feet deep by 5 feet wide at the top, along each side. This section is shown in plan and cross-section on plate 1 as Section 8. (This plate appears in T.M. 211-5 as plate 2). The test consisted of taking moisture-content samples at regular intervals from 26 June 1945 to 23 January 1946 and correlating the information obtained from these samples.</p>			
KEYWORDS: Bituminous cements; Prefabricated surfacings; Soil moisture; Subgrades			

DD FORM 1473
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
RESULTS OF TRAFFIC TESTS ON VARIOUS COMBINATIONS OF LIGHT BAR AND ROD AIRPLANE LANDING MATS AND BASE COURSES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
20 August 1944	44	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 212-1	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Work Order DAC 3009		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314
13. ABSTRACT		
<p>The purpose of these tests was to determine the feasibility from a construction standpoint of incorporating light bar and rod airplane landing mat in gravelly sand-clay base course material to form a surfacing for airplane runways for use in the theatre of operations, and to determine the relative efficacy of such surfacing under traffic in comparison with standard steel pierced plank landing mat with and without base courses and with base courses without mat.</p>		
KEYWORDS: Base courses; Landing mats; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of this, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		21. GROUP
AIRPLANE LANDING MAT INVESTIGATION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (Last name, middle initial, first name)		
6. REPORT DATE	76. TOTAL NO. OF PAGES	77. NO. OF REFS
20 September 1944	143	
88. CONTRACT OR GRANT NO.	22. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 212-2	
c.	23. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314
13. ABSTRACT		
The general purpose and objective of this investigation was to determine the performance of various airplane landing mats on different soils and prepared base courses under different conditions and several wheel loads.		
KEYWORDS: California Bearing Ratio tests; Landing mats		

DD FORM 1473

1 NOV 64

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
TESTS ON STEEL PIERCED PLANK AIRPLANE LANDING MATS, WITH INTEGRAL LOCKING LUGS AND OVERLAPPING TURNED-DOWN ENDS; FINAL REPORT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
6 October 1944	26	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 212-3	
9a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Work Order DAC 3040		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314
13. ABSTRACT		
Tests included the construction of eight test sections approximately 16-2/3 ft long by 50 ft wide, with turnarounds suitable for turning the testing equipment, and traffic-testing these sections with the 37,000-lb wheel load. The sections were arranged as shown on plate 1. Sample planks were weighed and measured. Photographic records and deflection cross sections were made as the tests progressed.		
KEYWORDS: Steel landing mats; Traffic tests		

DD FORM 1473

NOV 63

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, form of abstract and indexing and citation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
COMPARATIVE TRAFFIC TESTS ON VARIOUS METHODS OF LAYING PIERCED PLANK AIRPLANE LANDING MAT; FINAL REPORT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report			
5. AUTHOR(S) (Last name, middle initial, first name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
16 October 1944		26	
1a. CONTRACT OR GRANT NO.		6a. ORIGINATOR'S REPORT NUMBER(S)	
1. PROJECT NO.		Technical Memorandum No. 212-4	
c. Work Order DAC 3029		2b. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers U. S. Army Washington, D. C. 2 0314	
13. ABSTRACT			
<p>The purpose of this test was, (1) to determine which of the various methods of laying pierced plank airplane landing mat was the most feasible from the standpoint of performance under traffic, and (2) to determine the most efficient way to even the edges of the pierced plank around the perimeter of the section when laid on a 45-degree skew to the center line. The main function of the test was to conduct accelerated traffic tests with a 37,000-lb wheel load on standard pierced plank landing mats laid on a fairly uniform subgrade.</p>			
KEYWORDS: Landing mats; Traffic tests			

DD FORM 1473

FORM

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE PIERCED PLANK AIRPLANE LANDING MAT WITH INTEGRAL LOCKING LUGS; FINAL REPORT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE 6 November 1944		7a. TOTAL NO. OF PAGES 36	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 212-5	
9a. PROJECT NO. Work Order No. DAC 3036		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers U. S. Army Washington, D. C. 20314	
13. ABSTRACT The objectives of the investigation were accomplished by conducting traffic tests on mat equipped with the locking devices discussed, using the 37,000-lb wheel load. For testing, the mats were placed on a prepared silt subgrade in a test lane composed of four test sections 25 ft long by 50 ft wide, and six test sections 50 ft long by 50 ft wide. Each of these latter sections was divided into three subsections approximately 16-2/3 ft long by 50 ft wide. The tests also included the measuring and weighing of mat bundles and the keeping of photographic records, deflection cross sections, and detailed field notes. KEYWORDS: Landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
COMPARATIVE TRAFFIC TESTS ON STANDARD PIERCED PLANK AND MODEL 2-T6 (WICHERT) PIERCED PLANK AIRPLANE LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
16 April 1945	74	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 212-6	
b. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314
13. ABSTRACT		
<p>The tests described in this report involved the construction of suitable test lanes, with turnarounds, for testing pierced type Model 2-T6 (Wichert) mats, made of steel, aluminum alloy, and magnesium alloy, in comparison with standard pierced plank mats made of steel and of aluminum alloy. The tests consisted of traffic-testing these mats by uniform coverages with a 37,000-lb wheel load and with a 15,000-lb wheel load, and brake-testing them with a 30,000-lb wheel load. In connection with the traffic tests, settlement cross sections, detailed traffic notes, and photographic records, including some moving pictures, were made.</p>		
KEYWORDS: Metal landing mats; Traffic tests		

DD FORM 1473 1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
TRAFFIC TESTS ON ALUMINUM ALLOY PIERCED PLANK MAT WITH REDUCED VERTICAL BAYONET CLEARANCE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 May 1945		34	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 212-7	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d. Work Order DAC 3063			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers U. S. Army Washington, D. C. 20314	
13. ABSTRACT			
<p>The primary purpose of these tests was to determine the minimum practicable vertical bayonet clearance for aluminum alloy pierced plank landing mat. Secondary objectives were: (a) to compare the performance of aluminum alloy pierced planks having three different degrees of reduction in vertical bayonet clearance with that of standard aluminum and steel pierced plank; (b) to compare the time required for placing aluminum alloy pierced planks with three different degrees of reduction in bayonet clearance with that required to place standard pierced planks of aluminum alloy and steel.</p>			
KEYWORDS: Aluminum landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2. REPORT TITLE		2b. GROUP	
TRAFFIC TEST ON AIRPLANE LANDING MAT, STEEL, PIERCED TYPE M-6			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 May 1946		51	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 212-S	
c. Work Order No. DAC 3081		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
The purpose of these tests was to determine whether or not airplane landing mat, steel, pierced type, M-6 was sufficiently improved over the existing steel pierced plank to justify service tests.			
KEYWORDS: Steel landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and index annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
RIGID PLATE BEARING TEST INVESTIGATION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 March 1945	137	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum - Unnumbered	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The general purpose and objectives of the investigation were to determine by use of a circular, rigid bearing-plate test on several types of soil the following: (a) the effective change in the modulus of soil reaction of different soils when tested in a relatively dry and in a saturated condition; (b) the effect of varying the load area on the modulus of soil reaction, and (c) correlation between the modulus of soil reaction as determined from field plate bearing tests with results of CBR tests, or other related laboratory tests. The soils selected were a silty clay, Vicksburg silt loess, and a heavy "buckshot" clay.</p>		
KEYWORDS: Plate bearing tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

<div>Unclassified</div> <div>Security Classification</div>		
DOCUMENT CONTROL DATA - R 2 D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		10. REPORT SECURITY CLASSIFICATION Unclassified 20. GROUP
2. REPORT TITLE THE CALIFORNIA BEARING RATIO TEST AS APPLIED TO THE DESIGN OF FLEXIBLE PAVEMENTS FOR AIRPORTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE 1 July 1945	7a. TOTAL NO. OF PAGES 276	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 213-1 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT <p>The background, development, and limitations of the CBR test procedure, together with its application to design and a resume of the principal findings of the comprehensive laboratory study of the CBR test, are covered in the main body of this report. Also contained in the main report are procedures recommended for preparation of remolded and undisturbed samples for CBR (penetration) test; pertinent comparisons of laboratory and field CBR data from several projects, and recommendations for further investigations. The detailed results of the comprehensive laboratory studies on the preparation and penetration of CBR test specimens are given in Appendix A. The results of a comparative study of the compaction characteristics of plastic soils are contained in Appendix B. A description of a recently-developed combination screw jack and proving ring field CBR apparatus, together with a detailed procedure for operation of this apparatus, are given in Appendix C.</p> <p>KEYWORDS: California Bearing Ratio tests; Flexible pavement design (Airfields)</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
CERTAIN REQUIREMENTS FOR FLEXIBLE PAVEMENT DESIGN FOR B-29 PLANES			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 August 1945		52	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum - Unnumbered	
c. Work Order No. DAC 3004		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>The scope of this report is limited to an analytical review and to theoretical analyses necessary to develop tentative design curves for a 60,000-lb load on a dual wheel of a B-29 plane similar to the tentative curves used in the California method of design.</p> <p>KEYWORDS: Flexible pavement design (Airfields); [B-29 aircraft]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
RIGID PAVEMENT TESTS, MARIETTA, GEORGIA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1 August 1945	67	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.	Technical Memorandum - Unnumbered	
9.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
4.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The principal objective of the tests was to determine pavement deflections of an existing concrete apron at various locations with respect to the different types of pavement joints for wheel loads of a B-29 loaded (60,000 lbs per dual wheel) and empty (40,000 lbs per dual wheel) and a B-24 fully loaded (30,000 lbs per wheel) for standing, moving, and vibratory conditions.</p>		
KEYWORDS: Rigid pavement performance and evaluation (Airfields); [Marietta Army Airfield]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

SECURITY CLASSIFICATION

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE RESINOUS WATER REPELLENTS FOR SOILS; INTERIM REPORT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE 30 May 1946		7a. TOTAL NO. OF PAGES 135	7b. NO. OF REFS
6a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 217-1	
8. PROJECT NO.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Work Order No. 3047			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT The general purpose and objective of the investigation was to determine by means of laboratory and field tests the suitability of resinous water repellents for military construction and the type or types best suited for such use. A complete list of all soils studied in the preliminary laboratory phase of the investigation, together with all pertinent classification and compaction data for each soil, is shown on table 1. Six commercial water repellents were studied.			
KEYWORDS: Resins (Synthetic); Waterproofing (Soils)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
ACCELERATED TRAFFIC TESTS; SUMMARY REPORT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1947	248	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.	Technical Memorandum - Unnumbered	
C.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The report presents a summary review of accelerated traffic tests conducted in 1942 and early 1943 on flexible pavements at eight airfields in various parts of this country. It is one of several reports presenting the results of tests which were conducted to obtain data for determining flexible pavement design requirements. The tests described herein have been grouped into one report because the test methods were similar and the limited data obtained permit only general conclusion to be made. Detailed descriptions of the tests at each field are included with this report as appendices. In the individual test reports, the available data are analyzed and conclusions pertinent to the tests are made. In this report, the data from the tests at each field are reviewed and conclusions are made that are considered generally applicable to the design of flexible pavements. These conclusions are presented in Part IV of this report.</p>		
KEYWORDS: Accelerated traffic tests; Flexible pavement performance and evaluation (Airfields)		

DD FORM 1473

NOV 61

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and index/annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		12. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		23. GROUP
3. REPORT TITLE		
FLEXIBLE PAVEMENT BEHAVIOR STUDIES; INTERIM REPORT NO. 2		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1947	88	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum - Unnumbered
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The purpose of the study was to correlate and analyze available data from airfield pavements and traffic test sections and to secure supplementary data as considered necessary to determine satisfactory design criteria for flexible pavements. These criteria are for use in a revision of or incorporation into appropriate chapters of the Engineering Manual. The primary purpose of this interim report is to present and analyze the data obtained to April 1947 from the testing of existing airfields by the Waterways Experiment Station field party.</p>		
KEYWORDS: Flexible pavement performance and evaluation (Airfields)		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
INVESTIGATION OF SOLVENT RESISTANT TREATMENTS FOR BITUMINOUS PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
December 1947		7a. TOTAL NO. OF PAGES
		69
7b. NO. OF REFS		
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 210 ESA 1947. Dir. Cons. 7A-24822		Technical Memorandum No. 3-246
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The objectives of this investigation were to determine the resistance of various types of bituminous pavements to the detrimental effects of the spillage of gasoline, kerosene, lubricating oil, and hydraulic brake fluid and to further determine which surfacing materials and methods of treatment would satisfactorily protect existing bituminous pavements from the detrimental effects of the spillage of these petroleum products. The preliminary phase consisted of a laboratory study in which testing methods and procedures were devised and tests performed to select the most suitable products for further study. The second phase of the study was a small-scale field test to select the best of the materials passed by the laboratory tests.</p>		
KEYWORDS: Flexible pavements; Fuel spillage (Pavements)		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
INVESTIGATION OF THE DESIGN AND CONTROL OF ASPHALT PAVING MIXTURES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1948	3 Vols	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-254	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Work Order No. DAC 3002	Vol. 1 (AD A012 503); Vol. 2 (AD A012 504); Vol. 3 (AD A006 523)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of laboratory and field tests conducted by the Corps of Engineers to develop a method for the design and construction control of asphalt paving mixtures. The investigation consisted of: (a) the selection of a test apparatus and the performance of laboratory studies to develop techniques and procedures; (b) the construction of a test section and the performance of traffic tests with 15,000- and 37,000-lb single and 60,000-lb dual wheel loads to obtain design criteria; and (c) additional laboratory work to adjust the test procedures to the design criteria. Appendix A: Selection of Design and Control Method. Appendix B: Presentation of Initial Laboratory Test Data. Appendix C: Design and Construction of Test Section. Appendix D: Traffic Tests. Appendix E. Final Laboratory Correlation Tests.</p>		
KEYWORDS: Asphalt mix design; Flexible pavement design ((Airfields)); Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		4a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRPLANE LANDING MAT INVESTIGATION, TESTS ON STEEL, PIERCED TYPE, M7		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1948	110	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. AC 680 (now 8-69-04-002)	Technical Memorandum No. 3-266	
c. Work Order No. DAC 3099	8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Corps of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The primary objective of this study was to determine if a single layer of the M7 landing mat is capable of sustaining traffic simulating that imposed by military aircraft with 70,000-lb dual wheel loads during one year of normal operations on a field airdrome in a theater of operations. An additional objective was the determination of the effect on the M7 mat of traffic with a 50,000-lb single wheel load. To accomplish these two objectives test sections were constructed and surfaced with the M7 mat. Control sections were also placed in which the earlier M6 type mat was used for comparison. Traffic was applied to both types of mat with the designated wheel loads using a runway load testing cart. Another objective of the tests was to record data that could be used to determine if the M7 mat complies with the military characteristics as outlined in project AC 680 (now 8-69-04-002). This was done by measuring certain physical characteristics of the mat designated in the plan of tests. Tests were also included to determine the relative rates of wear of 26- by 6.6-in. airplane tires on M7 and M6 landing mats and on asphaltic concrete, and to obtain limited information on the distribution of stresses and deflections in the subgrade under the M7 and M6 mat.</p>		
KEYWORDS: Steel landing mats; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 2, COMPACTION STUDIES ON SILTY CLAY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
July 1949		
7a. TOTAL NO. OF PAGES		
100		
7b. NO. OF REFS		
8a. CONTRACT OR GRANT NO.		
8b. ORIGINATOR'S REPORT NUMBER(S)		
Technical Memorandum No. 3-271, Report No. 2		
8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
9. PROJECT NO.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		
12. SPONSORING MILITARY ACTIVITY		
Office, Chief of Engineers Washington, D. C. 20314		
13. ABSTRACT		
<p>The general purposes of this phase of the investigation were to obtain information as to the effectiveness of rubber-tired and sheepsfoot roller equipment in compacting silty clay to a high density economically and to compare this information with laboratory compaction data. Specifically, it was desired to determine the stress-strain characteristics of silty clay compacted in the field and in the laboratory, and to determine the feasibility of using sheepsfoot and rubber-tired rollers to obtain higher densities in silty clay than are now generally specified.</p>		
KEYWORDS: Clays; Compaction (Soils)		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 3, COMPACTION STUDIES ON SAND SUBGRADE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1949	41	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.	Technical Memorandum No. 3-271, Report No. 3	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The purpose of the sand compaction investigation at Eglin Field, Florida, was to determine the effectiveness of heavy equipment such as tractors, Tournapulls, and the like, in obtaining compaction of free-draining sand subgrades which would meet the above requirements. The investigation at Eglin Field had the further purpose of determining practical compaction methods which could be used during construction of a new runway at that field, designed for ultimate reinforcement to a 300,000-lb plane load.</p>		
KEYWORDS: Compaction (Soils); Sands; Subgrades; [Eglin Air Force Base, Florida]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 4, SUBGRADE COMPACTION STUDIES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
February 1950		
7a. TOTAL NO. OF PAGES		7b. NO. OF REFS
45		
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-271, Report No. 4
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The objectives of the study were accomplished by performing laboratory compaction tests and field subgrade compaction tests on four plastic soils using, (a) a specially constructed sheepsfoot roller having 18-in.-long feet with a unit pressure of approximately 1100 psi, and (b) a heavy rubber-tired roller with a wheel load of 40,000 lb.</p>		
<p>KEYWORDS: Clays; Compaction (Soils); Rubber tired rollers; Sheepsfoot rollers; Subgrades</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 5, MISCELLANEOUS LABORATORY TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1950	108	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-271, Report No. 5
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The general purpose of these studies was to investigate the effect of certain variables on standard procedures for the preparation of laboratory specimens for the CBR test and to develop a suitable standard compaction test for cohesionless materials.</p>		
<p>KEYWORDS: California Bearing Ratio tests; Compaction (Soils); Compaction tests; Soil test specimens</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 6, EFFECT OF SIZE OF FEET ON SHEEPSFOOT ROLLER		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1954	67	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-271, Report No. 6	
b. PROJECT NO.		
c.	9b. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.	AD 052 540	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents results of field compaction tests made with a sheepsfoot roller having three different foot sizes. A lean clay (formerly termed silty clay) similar to that used in tests conducted in 1946 and described in Report No. 2 of this series was used in these studies. This phase of the soil compaction investigation was conducted to determine: (a) the effect produced on compaction and strength characteristics by increasing the area of the feet of sheepsfoot rollers while the contact pressure is held constant, (b) the effect on compaction of number of passes of sheepsfoot rollers, (c) the permanence of compaction in previously constructed lean clay test fills. As an incidental part of this study the effective diameter of the roller was obtained and the findings are included in this report.</p>		
KEYWORDS: Clays; Compaction (Soils); Sheepsfoot rollers		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
SOIL COMPACTION INVESTIGATION; Report No. 7, EFFECT ON SOIL COMPACTION OF TIRE PRESSURE AND NUMBER OF COVERAGES OF RUBBER-TIRED ROLLERS AND FOOT-CONTACT PRESSURE OF SHEEPSFOOT ROLLERS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1956		75	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-271, Report No. 7	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 105 204	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of a field and laboratory study of the effects of tire pressure and number of coverages of rubber-tired rollers and foot-contact pressure of sheepsfoot rollers on the compaction and stress-strain characteristics of a lean-clay soil. Test fills were constructed using a rubber-tired roller, with tire pressures ranging from 50 to 150 psi and compacted by 4 to 16 coverages, and a sheepsfoot roller with 14-sq-in. feet loaded to produce nominal foot contact pressure of 125 and 375 psi. Laboratory- and field-compacted samples of the clay were subjected to water content, density, CBR, and triaxial shear tests. It was found that increasing the number of coverages or tire pressure of a rubber-tired roller, within the limits used in this study, results in higher maximum densities at lower optimum water contents. Increase in density results in (a) increase in strength where the soil water content is dry of the optimum for the highest compaction effort used, and (b) decrease in strength where the soil water content is wet of optimum. Increasing the foot pressure of the sheepsfoot roller used had little effect on the degree of compaction or strength obtained in the test soil.</p>			
KEYWORDS: Clays; Compaction (Soils); Rubber tired rollers; Sheepsfoot rollers			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 8, EFFECT OF LIFT THICKNESS AND TIRE PRESSURE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1957	106	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-271, Report No. 8	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 145 865	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of a field and laboratory study of the effects of variation in lift thickness on the compaction of a lean clay by a rubber-tired roller. Lean clay test fills were constructed using a rubber-tired roller with tires inflated to pressures of 90 and 150 psi and wheel loads of 25,000 and 31,250 lb, respectively. Laboratory- and field-compacted samples were subjected to water content, density, CBR, and triaxial shear tests. It was found that the 90-psi roller can effectively compact loose lift thicknesses up to 14 in. at optimum water content, whereas the 150-psi roller can effectively compact loose lift thicknesses of only 9 in. or less at optimum water content because of the greater sinkage or rutting it produces in the loose soil. The economy of compaction in thicker lifts must be determined in the field. The fact that heavy rollers with high-pressure tires require extra tractive effort and possibly precompaction with lighter rollers to prevent high initial sinkage and shoving in the loose lift may outweigh the advantage gained by the increase in lift thickness.</p>		
KEYWORDS: Clays; Compaction (Soils); Compactors; Rubber tired rollers		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE SOIL COMPACTION INVESTIGATION; EVALUATION OF VIBRATORY ROLLERS ON THREE TYPES OF SOILS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 10 of a series		
5. AUTHOR(S) (First name, middle initial, last name) Jim W. Hall		
6. REPORT DATE March 1968	7a. TOTAL NO. OF PAGES 32	7b. NO. OF REFS 0
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-271, Report 10	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 667 966	
8c.		
8d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Air Force
13. ABSTRACT <p>This study was conducted for the purpose of determining the ability of vibratory rollers to compact soils. For comparative purposes, a 50-ton rubber-tired roller was used which is a required compaction device in present Corps of Engineers Guide Specifications. Three vibratory rollers were selected for study based on their operating frequency which encompassed the range over which present vibratory rollers operate. Results of this study show that light vibratory rollers can obtain satisfactory densities if lift thicknesses are restricted. To evaluate the vibratory rollers, each was used to compact three soil types (a lean clay, a crushed limestone, and a clean sand). Results indicate that a heavy, low-frequency vibratory roller will compact to greater depths than a light, high-frequency roller; however, the light, high-frequency roller will compact soil satisfactorily for a few inches below the surface. Soil types have a very definite influence on results obtained with vibratory rollers. The vibratory rollers generally perform better in granular soils; however, the heavy, low-frequency type rollers do a satisfactory job in clay soils.</p>		
KEYWORDS: Compaction (Soils); Vibratory compactors		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL COMPACTION INVESTIGATION; Report No. 9, COMPACTION OF A GRADED CRUSHED-AGGREGATE BASE COURSE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1963	48	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-271, Report No. 9	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 450 615	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of a combined laboratory and field study designed to develop methods and procedures for compacting a graded crushed-aggregate base course to the high densities required in heavy-load airfield pavements to preclude further appreciable densification under aircraft traffic. Laboratory tests, in which aggregate gradation, mold size, compaction effort, and layer thickness were varied, were performed in an effort to develop a procedure which would produce the very high densities found in airfield pavements being subjected to channelized traffic of heavy aircraft. However, the procedures tested showed no significant improvement over the modified AASHTO test procedure (Military Standard MIL-STD-621(CE), test method S-1, CE 55).</p>		
KEYWORDS: Aggregates; Compaction (Soils); Heavy load pavements		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security & Encapsulation

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
NOV 61

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
INVESTIGATION OF EFFECTS OF TRAFFIC WITH HIGH-PRESSURE TIRES ON ASPHALT PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1950	50	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-312	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The recent development of high-pressure (greater than 110 psi) tires by the Air Force has posed new problems in the design and control of asphalt paving mixtures. The tests reported herein were performed to determine the nature and magnitude of these problems. These tests were conducted on the existing portion of the asphalt stability test section which had been used for the study reported in Technical Memorandum No. 3-254.</p>		
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Tire-pavement interaction; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
2. REPORT TITLE		2b. GROUP
EFFECTS OF TRAFFIC WITH SMALL HIGH-PRESSURE TIRES ON ASPHALT PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1950	71	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-314	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The scope and purposes of the investigation were to conduct traffic tests on an existing asphalt stability test section in the 15,000-lb lane using the Navy F9F wheel assembly to: (a) determine the nature and magnitude of the problems presented by the narrow high-pressure tires; (b) obtain as much information as possible on the necessary quality and thickness of pavements for use by F9F airplanes, and (c) obtain information for use in preparing future test program, if needed.</p>		
<p>KEYWORDS: Flexible pavement performance and evaluation (Airfields); Tire-pavement interaction; Traffic tests</p>		

DD FORM 1473

NOV 66 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS; Report No. 1, HOMOGENEOUS CLAYEY-SILT TEST SECTION			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1951		309	15
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Memorandum No. 3-323, Report No. 1	
C.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of an investigation of the stresses and deflections produced within a homogeneous soil mass by single and dual, uniform, circular, static loads applied to its surface. A limited amount of data on the residual stresses in the soil mass is also presented and discussed. The results presented herein were obtained from tests conducted between July 1947 and April 1948 at the Waterways Experiment Station.</p> <p>KEYWORDS: Clays; Flexible pavement design (Airfields); Load tests (Pavements); Pavement deflection; Traffic tests</p>			

DD FORM 1473

NOV 51

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi	Unclassified	
		2b. GROUP
3. REPORT TITLE		
INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS; Report No. 2, PILOT TESTS ON NEW FOUR-GAGE CELL		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
October 1951	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
	33	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-323, Report No. 2	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD A006 499	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>A small test section, called Test Section No. 2, was constructed in the spring of 1949 at Vicksburg, Miss. Readings were made of both residual and induced stresses on various old- and new-type cells bedded in earth to compare their performance. The new-type cells were also bedded in sand and in crushed limestone to study methods of installation of the instruments in base materials. Findings are presented in this report.</p>		
<p>KEYWORDS: Flexible pavement design (Airfields); Pavement deflection; Pressure cells (Soils)</p>		

DD FORM 1473
1 NOV 61

REPLACES GO FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS; Report No. 3, THEORETICAL STRESSES INDUCED BY UNIFORM CIRCULAR LOADS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1953	90	12
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-323, Report No. 3	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 021 652	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The purpose of this report is to present formulas, derived from A. E. H. Love's work, from which the stresses, deflections, and strains induced by uniform circular loads can be computed. The functions obtained from Love's paper also will be of considerable aid in connection with modification and adjustment of empirical design criteria for flexible pavements. This is particularly true with respect to extrapolation of existing criteria to include heavier loads, higher tire pressures, and new multiple-wheel assemblies.</p>		
<p>KEYWORDS: Flexible pavement design (Airfields); Load tests (Pavements); Pavement deflection; Stresses under wheels</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS; Report No. 4, HOMOGENEOUS SAND TEST SECTION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1954	114	12
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-323, Report No. 4
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 052 207
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
Report presents the results of an investigation of stresses, strains, and deflections produced within a mass of dry, homogeneous sand by single and dual, uniform, circular, static loads applied to its surface. A study of stresses other than those produced by direct loading is also included along with various small related studies.		
KEYWORDS: Flexible pavement design (Airfields); Load tests (Pavements); Pavement deflection; Sands; Stresses under wheels		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS; Report No. 5, DEVELOPMENT OF REPRESENTATIVE SOIL STRENGTHS FROM LABORATORY TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE December 1960	7a. TOTAL NO. OF PAGES 43	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-323, Report No. 5	
9. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 265 628	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT One of the most important features of the comprehensive study of the distribution of stress, deflection, and strain in soil masses, of which the triaxial tests are a part, is the determination by measurement of the stress-strain relations existing within large soil masses subjected to surface loading. In two earlier phases of the comprehensive investigation, stress-strain curves were developed, for a vertical orientation, that are representative of the actual stress-strain relations existing within a large homogeneous clayey silt and a large homogeneous sand test section during application of surface loads. The triaxial test program had as its objective the establishment of a test method or procedure whereby stress-strain curves developed from laboratory tests on small, laboratory samples would duplicate the field data curves. By trial and error it was found that curves developed in variable-confining-pressure triaxial tests on undisturbed samples from the homogeneous clayey silt test section yielded stress-strain curves duplicating the field data so closely as to be identical for practical purposes. Similar results were obtained from prepared samples of sand from the homogeneous sand test section. It is believed that a theoretical loading curve can be used with the variable-confining-pressure triaxial test to develop stress-strain relations for soils of the type used in the tests reported, and perhaps for other types as well. It is recommended that in future work the test methods developed in the triaxial study be used to determine moduli of deformation, and that the probable validity of these moduli be considered in order that the test methods developed in the study may be further substantiated. KEYWORDS: Flexible pavements; Soil tests (Laboratory); Stress-strain relations (Soils)		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRPLANE LANDING MAT INVESTIGATION, ENGINEERING TESTS ON STEEL, PIERCED TYPE, M8 AND ALUMINUM, PIERCED TYPE, M9		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1951	117	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-324	
9. PROJECT NO.		
c.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 780 299	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Fort Belvoir, Virginia
13. ABSTRACT		
Physical characteristics of mats and waterproofing materials, construction of test lanes, and tests and results are described. A supplementary test with greater wheel load and tire-inflation pressure is also described in the Appendix.		
KEYWORDS: Aluminum landing mats; Steel landing mats; Traffic tests		

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE STUDY OF EFFECT OF CURRENT-TYPE JET AIRCRAFT ON AIRFIELD PAVEMENTS; INTERIM REPORT ON HEAT AND BLAST EFFECTS ON PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE July 1952	7a. TOTAL NO. OF PAGES 40	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum - Unnumbered	
a. PROJECT NO.		
c.	8d. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT The objective of the investigations reported herein was to obtain pavement temperatures, and to observe and correlate the effects as produced by U. S. Air Force jet aircraft operating on dry pavements at normal angle to the horizontal in accordance with selected time-power cycles as determined by the time-movement study. The objective was accomplished by the construction of test panels composed of high-quality asphaltic-concrete and portland-cement-concrete pavement surfaces as currently designed for 200-psi tire pressures. The test panels were subjected to blasts from the jet exhausts of eight current types of military aircraft. Pavement temperatures were determined by means of thermocouples installed in the pavement. Visual observations and a photographic record were made for all tests. KEYWORDS: Exhaust blast effects; Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields)		

DD FORM 1473 1 NOV 55 REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotations must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 1, KEFLAVIK AND PATTERSON AIRFIELDS, ICELAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1952		58	12
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 1	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
Report presents the results of one of a series of studies being conducted at overseas airfields to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Keflavik Airfield, Iceland; Patterson Airfield, Iceland]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security & Confidentiality

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

DD FORM 1473

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 3, HARMON AIR FORCE BASE, STEPHENVILLE, NEWFOUNDLAND, CANADA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1952	36	14
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 3	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Ernest Harmon Air Force Base is located on the southwest coast of the island of Newfoundland, about one and one-half miles east of the village of Stephenville, at the head of St. George's Bay. Plate 1 shows a layout of the field and a vicinity map. The results of plate bearing and flexural strength tests and other data contained in a previous report have been used in this evaluation. The explorations conducted by the Waterways Experiment Station overseas evaluation team consisted of ten test pits on the runways, taxiways, and apron. In-place CBR tests and moisture and density determinations were made on the surface of the subgrade. Detailed results of the tests are summarized. In general the pavements at the field are in good condition.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Harmon Air Force Base, Stephenville, Newfoundland, Canada]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

20. REPORT SECURITY CLASSIFICATION

Unclassified

2b. GROUP

LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES;
Report No. 4, BW-8 AIRFIELD, SONDRE STROMFJORD, GREENLAND

9. AUTHOR(S) (First name, middle initial, last name)

7b. NO. OF REFS	9
-----------------	---

98. ORIGINATOR'S REPORT NUMBER(S)

Technical Memorandum No. 3-343,
Report No. 4

C.

9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.

12. SPONSORING MILITARY ACTIVITY

Office, Chief of Engineers
Washington, D. C. 20314

The asphalt pavement on the runway and apron generally was in fair condition and showed no signs of distress other than a few thin cracks in several small localized areas. The surface of the pavement was fairly flat and smooth with no crown, but having a gentle slope westward down the runway. Data on in-place soil tests is shown on Table 1. Table 2 is a summary of pavement evaluation. All available aerial photographs with sufficient overlap for stereoscopic study were obtained.

DD FORM 1473
NOV 68

REPLACES DO FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

UNCLASSIFIED

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 5, BW-1 AIRFIELD, NARSARSSAUK, GREENLAND			
4. DESCRIPTIVE NOTES (Type of report and Inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1953		36	21
8a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 5	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at BW-1 Airfield, Narsarssauk, Greenland to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [[BW-1 Airfield, Narsarssauk, Greenland]			

DD FORM 1473 NOV 64 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

~~Unclassified~~
Security Classification

~~Unclassified~~

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 6, GOOSE BAY AIRFIELD, LABRADOR, CANADA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1952		33	12
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 6	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Goose Bay Airfield, Labrador, Canada to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Goose Bay Airfield, Labrador, Canada]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		10. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		10. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 7, GANDER AIRPORT, GANDER, NEWFOUNDLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1953	36	10
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 7	
B. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
C.		
D.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Gander Airport, Gander, Newfoundland to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Gander Airport, Gander, Newfoundland]</p>		

DD FORM 1 NOV 61 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 8, REYKJAVIK AIRFIELD, REYKJAVIK, ICELAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1952		32	5
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 8	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Reykjavik Airfield, Reykjavik, Iceland to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Reykjavik Airfield, Reykjavik, Iceland]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

66

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 10, KHOURIBGA AIRFIELD, KHOURIBGA, FRENCH MOROCCO		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1953	29	7
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 10
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Khouribga Airfield, French Morocco to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Khouribga, French Morocco]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 11, OUJDA AIRFIELD, OUJDA, FRENCH MOROCCO		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1953	31	10
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 11	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Oujda Airfield, French Morocco to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Oujda Airfield, Oujda, French Morocco]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		28. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		29. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 12, RABAT-SALE AIRFIELD, RABAT, FRENCH MOROCCO		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	76. TOTAL NO. OF PAGES	76. NO. OF REFS
March 1953	38	9
22. CONTRACT OR GRANT NO.		26. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 12
c.		26. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Rabat-Sale Airfield, French Morocco to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Rabat-Sale Airfield, French Morocco]		

DD FORM 1473, 1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 13, ROBERTS FIELD, LIBERIA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
December 1952		7a. TOTAL NO. OF PAGES
		37
7b. NO. OF REFS		
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 13
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Roberts Field, Liberia to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Roberts Field, Liberia]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 14, MARRAKECH AIRFIELD, FRENCH MOROCCO		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1953	35	9
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 14
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Marrakech Airfield, French Morocco to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Marrakech Airfield, French Morocco]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
NOV 66

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 16, SANTA MARIA AIRPORT, SANTA MARIA ISLAND, AZORES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1953	41	6
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 16	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Santa Maria Airport, Azores to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Santa Maria Airport, Santa Maria Island, Azores]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 17, LAGES AIR FORCE BASE, TERCEIRA, AZORES			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1953		63	5
8a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 17	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Lages Air Force Base, Terceira Island, Azores to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Lages Air Force Base, Terceira, Azores]			

DD FORM 1473

FORM

1 NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Airfields; Pavement performance and evaluation; [Evreux-Fauville Air Base, Evreux, France]

REPLACES DD FORM 1478, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 19, TOUL-ROSIERES AIR BASE, TOUL-ROSIERES, FRANCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
May 1953		
7a. TOTAL NO. OF PAGES		
44		
7b. NO. OF REFS		
15		
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 19
C.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
D.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Toul-Rosieres Air Base, Toul- Rosieres, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Toul-Rosieres Air Base, Toul-Rosieres]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 58, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 20, CHAUMONT AIR BASE, CHAUMONT, FRANCE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1953		53	12
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 20	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Chaumont Air Base, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Chaumont Air Base, Chaumont, France]			

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 NOV 65

REPLACES DO FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 22, BORDEAUX-MERIGNAC AIR BASE, BORDEAUX, FRANCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1953	52	14
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR(S) REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 22	
9. PROJECT NO.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Bordeaux-Merignac Air Base, Bordeaux, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Bordeaux-Merignac Air Base, Bordeaux, France]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 23, BITBURG I AIR BASE, BITBURG, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1953	46	17
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 23	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Bitburg I Air Base, Bitburg, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Bitburg I Air Base, Bitburg, Germany]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Airfields; Pavement performance and evaluation; [Bitburg II Air Base, Spangdahlem, Germany]

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 25, HAHN AIR BASE, HAHN, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
June 1953		7a. TOTAL NO. OF PAGES
		33
		7b. NO. OF REFS
		12
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 25
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Hahn Air Base, Hahn, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Hahn Air Base, Hahn, Germany]		

DD FORM 1473

1 NOV 55

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 26, LANDSTUHL AIR BASE, LANDSTUHL, GERMANY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1953		33	9
8a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 26	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Landstuhl Air Base, Landstuhl, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Landstuhl Air Base, Landstuhl, Germany]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 27, SEMBACH AIR BASE, SEMBACH, GERMANY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1953		37	14
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 27	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Sembach Air Base, Sembach, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Sembach Air Base, Sembach, Germany]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 28, TEMPELHOF AIR BASE, BERLIN, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1953	52	16
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 28	
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Tempelhof Air Base, Berlin, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Tempelhof Air Base, Berlin, Germany]		

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 29, WIESBADEN AIR BASE, WIESBADEN, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE August 1953	7a. TOTAL NO. OF PAGES 44	7b. NO. OF REFS 12
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 29	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at Wiesbaden Air Base, Wiesbaden, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Wiesbaden Air Base, Wiesbaden, Germany]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA: R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 30, ERDING AIR BASE, ERDING, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1953	46	14
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 30
C.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
D.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Erding Air Base, Erding, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Erding Air Base, Erding, Germany]		

DD FORM 1473

NOV 68 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Airfields; Pavement performance and evaluation; [Neubiberg Air Base, Neubiberg, Germany]

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 32, FURSTENFELDBRUCK AIR BASE, FURSTENFELDBRUCK, GERMANY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1953		49	14
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 32	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Furstenfeldbruck Air Base, Furstenfeldbruck, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suit- ability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Furstenfeldbruck Air Base, Furstenfeldbruck, Germany]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		20. REPORT SECURITY CLASSIFICATION Unclassified
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 33, STUTTGART AIRPORT, STUTTGART, GERMANY		26. GROUP
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE October 1953	7a. TOTAL NO. OF PAGES 45	7b. NO. OF REFS 6
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 33	
a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at Stuttgart Airport, Stuttgart, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Stuttgart Airport, Stuttgart, Germany]		

DD FORM 1473

1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi	Unclassified	
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 34, GIEBELSTADT AIRFIELD, GIEBELSTADT, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953	42	9
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 34	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
	Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT		
This report presents the results of studies conducted at Giebelstadt Airfield, Giebelstadt, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphoto and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Giebelstadt Airfield, Giebelstadt, Germany]		

DD FORM 1473
NOV 68

REPLACES DD FORM 1478, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 35, KITZINGEN AIRFIELD, KITZINGEN, GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953	43	9
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 35	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Kitzingen Airfield, Kitzingen, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Kitzingen Airfield, Kitzingen, Germany]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 36, RHEIN-MAIN AIR BASE, FRANKFURT AM MAIN, GERMANY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REF.
October 1953		56	13
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 36	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Rhein-Main Air Base, Frankfurt am Main, Germany to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Rhein-Main Air Base, Frankfurt am Main, Germany]			

DD FORM 1473

NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

AD-A045 026

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG--ETC F/G 1/5
A BIBLIOGRAPHY WITH ABSTRACTS OF U. S. ARMY ENGINEER WATERWAYS --ETC(U)
AUG 77 M P MEYER, V DALE
PSTIAC-5-VOL-2-PT-2

UNCLASSIFIED

NL

2 OF 5

AD
A045026



Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 37, CIAMPINO AIRPORT, ROME, ITALY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953	49	13
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 37	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Ciampino Airport, Rome, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Ciampino Airport, Rome, Italy]		

DD FORM 1473
NOV 61

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 38, CAPODICHINO AIRFIELD, NAPLES, ITALY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953	48	12
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 38	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Capodichino Airfield, Naples, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Capodichino Airfield, Naples, Italy]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2b. GROUP			
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 39, FOGGIA-MAIN AIRFIELD, FOGGIA, ITALY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953		361	10
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 39	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Foggia-Main Airfield, Foggia, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Foggia-Main Airfield, Foggia, Italy]			

DD FORM 1473

NOV 68

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

KEYWORDS: Airfields; Pavement performance and evaluation; [Foggia-Amendola Airfield, Foggia, Italy]

REPLACES DD FORM 1479, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

U. S. Army Engineer Waterways Experiment Station
Vicksburg, Mississippi

20. REPORT SECURITY CLASSIFICATION
Unclassified

26. GROUP

3. REPORT TITLE

LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES;
Report No. 41, TREVISO I AIRFIELD, TREVISO, ITALY

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (First name, middle initial, last name)

6. REPORT DATE

October 1953

78. TOTAL NO. OF PAGES

35

7b. NO. OF REFS	1
-----------------	---

10

42. CONTRACT OR GRANT NO.

A. PROJECT NO.

52. ORIGINATOR'S REPORT NUMBER(S)

Technical Memorandum No. 3-343,
Report No. 41

8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.

11. SUPPLEMENTARY NOTES

12. SPONSORING MILITARY ACTIVITY

Office, Chief of Engineers
Washington, D. C. 20314

13. ABSTRACT

This report presents the results of studies conducted at Treviso I Airfield, Treviso, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.

KEYWORDS: Airfields; Pavement performance and evaluation; [Treviso I Airfield, Treviso, Italy]

REPLACES DO FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 43, AVIANO AIR BASE, AVIANO, ITALY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1953	33	9
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 43	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Aviano Air Base, Aviano, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Aviano Air Base, Aviano, Italy]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 44, GHEDI AIR BASE, GHEDI, ITALY.		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1953	40	13
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 44	
9a. PROJECT NO.	9b. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Ghedi Air Base, Ghedi, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Ghedi Air Base, Ghedi, Italy]		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 45, MONTICHIARI AIR BASE, MONTICHIARI, ITALY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1953	34	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 45	
9. PROJECT NO.		
c.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1953. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Montichiari Air Base, Montichiari, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Montichiari Air Base, Montichiari, Italy]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 46, ORIO AL SERIO AIRFIELD, BERGAMO, ITALY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1953		37	10
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 46	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Orio Al Serio Airfield, Bergamo, Italy to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Orio Al Serio Airfield, Bergamo, Italy]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 NOV 61

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

~~Security Classification~~

Security Classification

Security classification of title, body of abstract and indexing - notation must be entered when the overall report is classified

KEYWORDS: Airfields; Calcareous soils; Pavement performance and evaluation; [French Morocco]

Unclassified

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		1a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 49, PHALSBURG AIR BASE, PHALSBURG, FRANCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1954	7a. TOTAL NO. OF PAGES 39	7b. NO. OF REFS 9
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 49	
b. PROJECT NO.	8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at Phalsbourg Air Base, Phalsbourg, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Phalsbourg Air Base, Phalsbourg, France]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2. REPORT TITLE		3b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 50, CHATEAUROUX-DEOLS AIR BASE, FRANCE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1954		29	8
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 50	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Chateauroux-Deols Air Base, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Chateauroux-Deols Air Base, France]			

DD FORM 1473

FORM
1 NOV 66REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 51, CHAMBLEY AIR BASE, CHAMBLEY, FRANCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1954	43	12
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 51	
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Chambley Air Base, Chambley, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p> <p>KEYWORDS: Airfields; Pavement performance and evaluation; [Chambley Air Base, Chambley, France]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 52, ETAIN-ROUVRES AIR BASE, ETAIN, FRANCE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1954		36	13
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 52	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Etain-Rouvres Air Base, Etain, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Etain-Rouvres Air Base, Etain, France]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 53, ST. NAZAIRE-MONTOIR AIR BASE, ST. NAZAIRE, FRANCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1954	42	22
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 53	
9. PROJECT NO.	9b. OTHER REPORT NUM(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at St. Nazaire-Montoir Air Base, France to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [St. Nazaire-Montoir Air Base, France]		

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		20. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 54, ORLANDET AIR BASE, NORWAY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1954		40	14
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 54	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Orlandet Air Base, Norway to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Orlandet Air Base, Norway]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 68, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		15. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		16. GROUP
2. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 55, STAVANGER-SOLA AIRPORT AND FORUS AIRFIELD, STAVANGER, NORWAY		
3. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
4. AUTHOR(S) (First name, middle initial, last name)		
5. REPORT DATE		
March 1954		
7a. TOTAL NO. OF PAGES		
46		
7b. NO. OF REFS		
11		
6a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 55
c.		9b. OTHER REPORT NO(S) (If other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Stavanger-Sola Airport and Forus Airfield, Stavanger, Norway to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Forus Airfield, Stavanger, Norway; Stavanger-Sola Airport, Stavanger, Norway]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473 NOV 65 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 57, KARUP AIR BASE, KARUP, DENMARK		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1954	42	7
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 57	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Karup Air Base, Karup, Denmark to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Karup Air Base, Karup, Denmark]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 58, TIRSTRUP AIR BASE, TIRSTRUP, DENMARK			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1954		34	7
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 58	
c.		9b. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Tirstrup Air Base, Tirstrup, Denmark to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement Performance and evaluation; [Tirstrup Air Base, Tirstrup Denmark]			

DD FORM 1473

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Airfields; Pavement performance and evaluation; [Vaerlose Air Base, Vaerlose, Denmark]

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 60, VANDEL AIR BASE, VANDEL, DENMARK		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1954	39	7
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 60	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Vandel Air Base, Vandel, Denmark to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Vandel Air Base, Vandel, Denmark]</p>		

DD FORM 1473
1 NOV 61

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 61, LUXEMBURG AIRPORT, LUXEMBURG, LUXEMBURG		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1954	45	10
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 61	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Luxemburg Airport, Luxemburg, Luxemburg to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Luxemburg Airport, Luxemburg, Luxemburg]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R E D		
1. ORIGINATING ACTIVITY (Corporate authority)		2. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 62, SUMMARY REPORT ON THE GEOLOGY AND SOILS OF FRENCH MOROCCO		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1954	41	8
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 62	
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report summarizes and correlates the more important geologic and soils information contained in previously published reports of individual airfields in the geographic and political subdivision of French Morocco. The purposes of the investigations described in these reports were to: (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [French Morocco]		

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
Security Classification of Title, Summary, and Indexing information must be entered when the overall report is classified.		
1. ORIGINATING AGENCY (Department, office, or activity)		2a. SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 63, SUMMARY REPORT ON THE GEOLOGY AND SOILS OF WESTERN GERMANY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1954	63	27
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 63	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report summarizes and correlates the more important geologic and soils information contained in previously published reports of individual airfields in the geographic and political subdivisions of Germany. The purposes of the investigations described in these reports were to: (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Western Germany]		

FORM 1473
1 NOV 61

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 64, ATHENS-ELLINIKON AIRPORT, ATHENS, GREECE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
3. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1954		37	11
6a. CONTRACT OR GRANT NO.		6b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 64	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
7. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Athens-Ellinikon Airport, Athens, Greece to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Athens-Ellinikon Airport, Athens, Greece]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		1a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 65, TIMBAKION AIR BASE, TIMBAKION, CRETE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE June 1954		7a. TOTAL NO. OF PAGES 32	7b. NO. OF REFS 8
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 65	
b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.			
d.			
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT This report presents the results of studies conducted at Timbakion Air Base, Timbakion, Crete to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Timbakion Air Base, Timbakion, Crete]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 66, KASTELLION AIR BASE, KASTELLION, CRETE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1954		32	8
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 66	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Kastellion Air Base, Kastellion, Crete to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types for possible future preparation of terrain-airfield suitability maps.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Kastellion Air Base, Kastellion, Crete]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 67, ARAXOS AIR BASE, GREECE		2b. GROUP	
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE July 1954	7a. TOTAL NO. OF PAGES 31	7b. NO. OF REFS 10	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 67		
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be used in this report)		
c.			
d.			
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT This report presents the results of studies conducted at Araxos Air Base, Greece to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Araxos Air Base, Greece]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 68, LARISA AIR BASE, LARISA, GREECE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1954		39	11
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 68	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Larisa Air Base, Larisa, Greece to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Larisa Air Base, Larisa, Greece]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		20. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 69, ETIMESUT AIR BASE, ANKARA, TURKEY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	70. TOTAL NO. OF PAGES	70. NO. OF REFS
August 1954	31	12
84. CONTRACT OR GRANT NO.	92. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 69	
a. PROJECT NO.		
c.	90. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Etimesut Air Base, Ankara, Turkey to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Etimesut Air Base, Ankara, Turkey]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
NOV 64

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2c. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 71, ESKISEHIR AIR BASE, ESKISEHIR, TURKEY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1954	35	9
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 71	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Eskisehir Air Base, Eskisehir, Turkey to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Eskisehir Air Base, Eskisehir, Turkey]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

KEYWORDS: Airfields; Pavement performance and evaluation; [Balikesir Air Base, Balikesir, Turkey]

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		20. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 73, DIYARBAKIR AIR BASE, DIYARBAKIR, TURKEY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1954	29	14
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 73	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Diyarbakir Air Base, Diyarbakir, Turkey to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Diyarbakir Air Base, Diyarbakir, Turkey]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 74, ADANA AIRPORT, ADANA, TURKEY			
4. DESCRIPTIVE NOTES (Type of report and Inclusive Dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1954		8	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 74	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39160.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>In-place field tests were not performed at Adana Airport as the field was under construction at the time of visit of the Waterways Experiment Station overseas evaluation team to Turkey in October and November 1953. Therefore, all information used to evaluate the pavements is necessarily based on the proposed design of the field which was obtained verbally from the Bureau of Airports, a Turkish governmental office located in Ankara, Turkey.</p>			
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Adana Airport, Adana, Turkey]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		15. REPORT SECURITY CLASSIFICATION Unclassified	
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 75, ADANA AIR BASE, ADANA, TURKEY		16. GROUP	
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE August 1954		7a. TOTAL NO. OF PAGES 13	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 75	
9. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report is based on data contained in "Pavement and Drainage Design Analysis, Adana Air Base" published by The United States Engineer Group (TUSEG), Ankara, Turkey. In-place tests were not performed at Adana Air Base since the aircraft landing facilities were in various stages of construction at the time the Waterways Experiment Station overseas evaluation team visited Turkey in October and November 1953. However, a comparison of TUSEG design data and Waterways Experiment Station field tests for other airfields revealed that the design and construction have been of the highest order.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Adana Air Base, Adana, Turkey]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

(Security Classification of this document) UNCLASSIFIED ACTIVITY (Corporate author)		
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 76, SANJURJO AIRPORT, ZARAGOZA, SPAIN		
DESCRIPTIVE NOTES (Type of report and inclusive dates)		
AUTHOR(S) (First name, middle initial, last name)		
3. REPORT DATE June 1954	7a. TOTAL NO. OF PAGES 46	7b. NO. OF REFS 11
4a. CONTRACT OR GRANT NO. 5. PROJECT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 76	
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT <p>This report presents the results of studies conducted at Sanjurjo Airport, Zaragoza, Spain to (a) evaluate the load-carrying capacity of the pavements; (b) obtain basic engineering information that could be utilized in design for strengthening and extending the existing aircraft landing facilities; and (c) obtain data for the development of ties between the land forms as shown on airphotos and soil types.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Sanjurjo Airport, Zaragoza, Spain]		

REPLACES FORM 1 JAN 54, WHICH IS
 OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate Author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 77, TORREJON DE ARDOZ AIR BASE, MADRID, SPAIN			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1954		30	9
8. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 77	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This report presents the results of studies conducted at Torrejon de Ardoz Air Base, Madrid, Spain to (a) evaluate the load-carrying capacity of the pavements, (b) obtain basic engineering information that could be utilized in design for strengthening and extending the existing aircraft landing facilities, and (c) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>			
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Torrejon de Ardoz Air Base, Madrid, Spain]</p>			

FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R E D		
<small>(Security classification of title, body of abstract and indexing classification must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 78, SUMMARY OF INVESTIGATIONS AT A PROPOSED AIRFIELD SITE, MORON DE LA FRONTERA, SPAIN		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1954	14	9
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 78	
9. PROJECT NO.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at a proposed airfield site at Moron de la Frontera, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Moron de la Frontera, Spain]		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexes; annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 79, WHEELUS AIR BASE, TRIPOLI, LIBYA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
July 1955		7a. TOTAL NO. OF PAGES
		34
7b. NO. OF REFS		10
8. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
D. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 79
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Wheelus Air Base, Tripoli, Libya to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Wheelus Air Base, Tripoli, Libya]		

FORM 1073, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - RZ D		
1. ORIGINATOR'S NAME (Type of organization) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2. REPORT SECURITY CLASSIFICATION Unclassified 3. GROUP
4. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 80, IDRIS AIRPORT, CASTEL BENITO, LIBYA		
5. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
6. AUTHOR(S) (First name, middle initial, last name)		
7. REPORT DATE February 1955	8. TOTAL NO. OF PAGES 36	9. NO. OF REFS 11
10. CONTRACT OR GRANT NO. a. PROJECT NO. c. d.	11. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 80 12. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
13. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
14. SUPPLEMENTARY NOTES		15. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
16. ABSTRACT This report presents the results of studies conducted at Idris Airport, Castel Benito, Libya to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; Idris Airport, Castel Benito, Libya		

DD FORM 173 NOV 61

REPLACES DD FORM 173, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		3. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 81, MISURATA WEST AIRFIELD, MISURATA, LIBYA, NORTH AFRICA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1955	31	8
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 81	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Misurata West Airfield, Misurata, Libya, North Africa to (a) evaluate the load-carrying capacity of the pave- ments, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Misurata West Airfield, Misurata, Libya, North Africa]		

FORM 10-75
NOV 65 1-75
REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Contract author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		10. REPORT SECURITY CLASSIFICATION Unclassified
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 82, BERCA II AIRFIELD, BENGHAZI, LIBYA		11. GROUP
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1955	7a. TOTAL NO. OF PAGES 31	7b. NO. OF REFS 12
8. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 82	
a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at Berca II Airfield, Benghazi, Libya to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Berca II Airfield, Benghazi, Libya]		

FORM 3-75 REPLACES DD FORM 1475, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of this body of abstract and indexing information must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 83, BENINA AIRPORT, BENGHAZI, LIBYA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1955	7a. TOTAL NO. OF PAGES 32	7b. NO. OF REFS 13
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 83	
a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT <p>This report presents the results of studies conducted at Benina Airport, Benghazi, Libya to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Benina Airport, Benghazi, Libya]		

DD FORM 1-773

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

<p>Unclassified</p> <p>Security Classification</p>		
DOCUMENT CONTROL DATA - R & D		
<p>(Security classification of title, body of abstract and indexing information must be entered when the overall report is classified)</p>		
<p>1. ORIGINATING ACTIVITY (Corporate author)</p> <p>U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi</p>		<p>2a. REPORT SECURITY CLASSIFICATION</p> <p>Unclassified</p>
		<p>2b. GROUP</p>
<p>3. REPORT TITLE</p> <p>LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 84, EL ADEM AIR BASE, EL ADEM, LIBYA</p>		
<p>4. DESCRIPTIVE NOTES (Type of report and inclusive dates)</p>		
<p>5. AUTHOR(S) (First name, middle initial, last name)</p>		
<p>6. REPORT DATE</p> <p>January 1955</p>	<p>7a. TOTAL NO. OF PAGES</p> <p>32</p>	<p>7b. NO. OF REFS</p> <p>9</p>
<p>8a. CONTRACT OR GRANT NO.</p>	<p>9a. ORIGINATOR'S REPORT NUMBER(S)</p> <p>Technical Memorandum No. 3-343, Report No. 84</p>	
<p>8b. PROJECT NO.</p>	<p>9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)</p>	
<p>c.</p>		
<p>d.</p>		
<p>10. DISTRIBUTION STATEMENT</p> <p>Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39160.</p>		
<p>11. SUPPLEMENTARY NOTES</p>		<p>12. SPONSORING MILITARY ACTIVITY</p> <p>Office, Chief of Engineers Washington, D. C. 20314</p>
<p>13. ABSTRACT</p> <p>This report presents the results of studies conducted at El Adem Air Base, El Adem, Libya to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [El Adem Air Base, El Adem, Libya]</p>		

DD FORM 1373, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		12. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
2. REPORT TITLE		13. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 85, SAN PABLO AIRPORT, SEVILLA, SPAIN		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
February 1955		
7a. TOTAL NO. OF PAGES		
37		
7b. NO. OF REFS		
10		
8a. CONTRACT OR GRANT NO.		
8b. ORIGINATOR'S REPORT NUMBER(S)		
Technical Memorandum No. 3-343, Report No. 85		
9a. PROJECT NO.		
9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SPONSORING MILITARY ACTIVITY		
Office, Chief of Engineers Washington, D. C. 20314		
12. ABSTRACT		
This report presents the results of studies conducted at San Pablo Airport, Sevilla, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [San Pablo Airport, Sevilla, Spain]		

REPLACES FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

SECURITY CLASSIFICATION		
CONTROL DATA - R & D		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
2. REPORT TITLE		2b. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 86, LOS LLANOS AIR BASE, ALBACETE, SPAIN		
3. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
4. AUTHOR(S) (First name, middle initial, last name)		
5. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1955	33	10
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 86	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Los Llanos Air Base, Albacete, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Los Llanos Air Base, Albacete, Spain]		

DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 87, REUS AIR BASE, REUS, SPAIN		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1955	34	10
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 87
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Reus Air Base, Reus, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Reus Air Base, Reus, Spain]</p>		

FORM 10-73

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 88, MUNTADAS AIRPORT, BARCELONA, SPAIN		
4. DESCRIPTIVE NOTES (Type of report and Inclusive Dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1955	35	10
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 88	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Muntadas Airport, Barcelona, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Muntadas Airport, Barcelona, Spain]</p>		

FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>Security Classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 89, BARAJAS INTERNATIONAL AIRPORT, MADRID, SPAIN		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE March 1955	7a. TOTAL NO. OF PAGES 33	7b. NO. OF REFS 15
8a. CONTRACT OR GRANT NO. 8. PROJECT NO. c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 89 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at Barajas International Airport, Madrid, Spain to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation;; [Barajas International Airport, Madrid, Spain]		

DD FORM 1 NOV 61 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		10. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		20. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 90, ROYAL AIR FORCE STATION MANSTON, KENT, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
August 1955		70. TOTAL NO. OF PAGES
		42
		70. NO. OF REFS
		8
10. CONTRACT OR GRANT NO.		90. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 90
c.		90. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Manston, Kent, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Manston, Kent, England]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

KEYWORDS: Airfields; Pavement performance and evaluation; [RAF Station Brize Norton, Oxford, England]

REPLACED DD FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 92, RAF STATION MILDENHALL, SUFFOLK, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
October 1955		7a. TOTAL NO. OF PAGES
		43
7b. NO. OF REFS		5
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 92
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Mildenhall, Suffolk, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Mildenhall, Suffolk, England]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 93, RAF STATION MOLESWORTH, HUNTINGDONSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955	36	8
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 93	
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Molesworth, Molesworth, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation;; [Royal Air Force Station Molesworth, Molesworth, England]		

DD FORM 1473
1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 94, ROYAL AIR FORCE STATION HOLME, YORKSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1955	31	8
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 94
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Holme, Holme upon Spalding Moor, Yorkshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Holme, Yorkshire, England]		

DD FORM 1 NOV 61 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 95, RAF STATION ELVINGTON, YORKSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955	38	8
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 95	
b. PROJECT NO.		
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at RAF Station Elvington, Yorkshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Elvington, Yorkshire, England]		

DD FORM 1473

NOV 65 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 96, RAF STATION ALCONBURY, ALCONBURY (LINCOLNSHIRE), ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1955		36	8
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 96	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station Alconbury, Alcon- bury, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Alconbury, Alconbury, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 97, RAF STATION EAST KIRKBY, LINCOLNSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955	33	8
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 97	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at RAF Station East Kirkby, Lincolnshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station East Kirkby, Lincolnshire, England]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		12. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		25. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 98, RAF STATION FAIRFORD, GLOUCESTERSHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF FIGS
December 1955		39	9
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 98	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station Fairford, Gloucestershire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Fairford, Gloucestershire, England]			

DD FORM 1 NOV 65 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 99, RAF STATION BENTWATERS, SUFFOLK, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955		34	7
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 99	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Bentwaters, Suffolk, England to (a) evaluate the load-carrying capacity of the pavements and (b) obtain data for the development of ties between the land forms as shown on air- photos and soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Bentwaters, Suffolk, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 100, RAF STATION BURTONWOOD, LANCASHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955		34	7
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 100	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station Burtonwood, Lancashire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Burtonwood, Lancashire, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 101, RAF STATION WETHERSFIELD, ESSEX, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE October 1955		7a. TOTAL NO. OF PAGES 34	7b. NO. OF REFS 9
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 101	
9. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT This report presents the results of studies conducted at RAF Station Wethersfield, Essex, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Wethersfield, Essex, England]			

DD FORM 1 NOV 65 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		21. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 102, RAF STATION WOODBRIDGE, SUFFOLK, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		70. TOTAL NO. OF PAGES	70. NO. OF RLFS
December 1955		33	10
12. CONTRACT OR GRANT NO.		22. ORIGINATOR'S REPORT NUMBER(S)	
5. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 102	
c.		23. OTHER REPORT NO(S) (Any other numbers list may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Woodbridge, Suffolk, England to (a) evaluate the load-carrying capacity of the pave- ments, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Woodbridge, Suffolk, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 MAY 64

REPLACES DD FORM 1678, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

5. early classification of title, body of abstract and indexing annotation must be entered when the overall report is classified

1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		25. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 104, RAF STATION LAKENHEATH, SUFFOLK, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1955		31	5
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 104	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Lakenheath, Suffolk, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Lakenheath, Suffolk, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		20. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		20. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 105, RAF STATION UPPER HEYFORD, OXFORDSHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1955		38	8
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 105	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station Upper Heyford, Oxfordshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Upper Heyford, Oxfordshire, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report 106, RAF STATION TIBENHAM, SUFFOLK, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE			
December 1955		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
		27.	9
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 106	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Tibenham, Suffolk, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Tibenham, Suffolk, England]			

DD FORM 1, NOV 61, 1473

REPLACES DD FORM 1473, 1 JAN 49, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
2b. GROUP		
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 107, RAF STATION BEAULIEU, HAMPSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
c		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1955	33	6
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 107	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at RAF Station Beaulieu, Hampshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Beaulieu, Hampshire, England]		

DD FORM 1 NOV 61 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 108, RAF STATION STURGATE, LINCOLNSHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1955		40	8
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 108	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Sturgate, Lincolnshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Sturgate, Lincolnshire, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified</small> <small>(Indicate if U. S. Army (Corporate author))</small>		
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 109, RAF STATION BLYTON, LINCOLNSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE February 1956	7a. TOTAL NO. OF PAGES 35	7b. NO. OF REFS 8
8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 109 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT This report presents the results of studies conducted at RAF Station Blyton, Lincolnshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Blyton, Lincolnshire, England]		

DD FORM 1 NOV 66 73

REPLACES DD FORM 1671, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R 10		
1. ORIGINATING ACTIVITY (Corporate author)		12. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		10. GROUP
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 110, BLACKBUSH AIRPORT, SURREY, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1956	30	6
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 110	
9. PROJECT NO.	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Blackbush Airport, Surrey, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Blackbush Airport, Surrey, England]		

REPLACES DO FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security Classification of title, body of abstract and indexing notation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		10. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		20. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 111, RAF STATION SPILSBY, LINCOLNSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	70. TOTAL NO. OF PAGES	70. NO. OF REFS
February 1956	32	8
13. CONTRACT OR GRANT NO.	90. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 111	
3. PROJECT NO.	90. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Royal Air Force Station Spilsby Lincolnshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Spilsby, Lincolnshire, England]</p>		

FORM 1 NOV 66 1-70 REPLACES DD FORM 1073, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473 NOV 64 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 113, RAF STATION SCULTHORPE, NORFOLK, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
February 1956		7a. TOTAL NO. OF PAGES
		31
6a. CONTRACT OR GRANT NO.		7b. NO. OF REFS
		9
b. PROJECT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)
		Technical Memorandum No. 3-343, Report No. 113
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Sculthorpe, Norfolk, England to (a) evaluate the load-carrying capacity of the pave- ments, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Sculthorpe, Norfolk, England]		

DD FORM 1473

1 NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

DD FORM 1473, 1 JAN 64, WHICH IS
NOV 60 1473 OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 115, RAF STATION ST. MAWGAN, CORNWALL, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
February 1956	36	9	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)		
	Technical Memorandum No. 3-343, Report No. 115		
9a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station St. Mawgan, Cornwall, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station St. Mawgan, Cornwall, England]			

DD FORM 1473

REPLACES THE FORM DATED 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 116, RAF STATION WROUGHTON, WILTSHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1956		38	12
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 116	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be con- this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at RAF Station Wroughton, Wiltshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on air- photos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Wroughton, Wiltshire, England]			

DD FORM 1473

FORM
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 117, RAF STATION CHELVESTON, NORTHAMPTONSHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
April 1956		
7a. TOTAL NO. OF PAGES		
35		
7b. NO. OF REFS		
11		
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 117
C.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
D.		
9. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Air Force Station Chelveston, Northamptonshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Chelveston, Northamptonshire, England]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Full Sutton, Yorkshire, England]

REPLACES DD FORM 1474, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 119, RAF STATION EAST FORTUNE, EAST LOTHIAN, SCOTLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1956	41	11
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 119	
9a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned to this report)	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at RAF Station East Fortune, East Lothian, Scotland to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station East Fortune, East Lothian, Scotland]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 120, RAF STATION LINDHOLME, YORKSHIRE, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1956		41	15
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 120	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Air Force Station Lindholme, Yorkshire, England to (a) evaluate the load-carrying capacity of the pave- ments, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Lindholme, Yorkshire, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

<small>(See instructions on back of form for details of use and for information on classification)</small> UNCLASSIFIED DATA - NO. 3		
1. ORIGINATING ACTIVITY (Corporate name) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 121, RAF STATION OAKINGTON, CAMBRIDGESHIRE, ENGLAND		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE May 1956	7a. TOTAL NO. OF PAGES 49	7b. NO. OF REFS 13
8. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-343, Report No. 121	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT This report presents the results of studies conducted at RAF Station Oakington, Cambridgeshire, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Air Force Station Oakington, Cambridgeshire, England]		

DD FORM 1-73

REPLACES DD FORM 1-73, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 122, ROYAL NAVAL AIR STATION FORD, SUSSEX, ENGLAND			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1956		35	14
3a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 122	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
9. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
This report presents the results of studies conducted at Royal Naval Air Station Ford, Sussex, England to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and the soil types.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Naval Air Station Ford, Sussex, England]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 68, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 123, RPAF STATION MAURIPUR, KARACHI, WEST PAKISTAN		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1957	33	10
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.	Technical Memorandum No. 3-343, Report No. 123	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
This report presents the results of studies conducted at Royal Pakistan Air Force (RPAF) Station Mauripur, Karachi, West Pakistan to (a) enable the load-carrying capacity of the pavements to be evaluated, (b) obtain basic engineering information that can be utilized in the design for strengthening and extending the existing landing facilities, and (c) obtain data for development of ties between land forms as shown on airphotos and soil types.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Royal Pakistan Air Force Station Mauripur, Karachi, West Pakistan]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing information must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 124, DHAHRAN AIRFIELD, DHAHRAN, SAUDI ARABIA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1958	55	8
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-343, Report No. 124	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of studies conducted at Dhahran Airfield, Dhahran, Saudi Arabia to (a) evaluate the load-carrying capacity of the pavements, and (b) obtain data for the development of ties between the land forms as shown on airphotos and soil types.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Dhahran Airfield, Dhahran, Saudi Arabia]</p>		

DD FORM 1073

REPLACES DD FORM 1073, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing classification must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 125, PAF STATION PESHAWAR, PESHAWAR, WEST PAKISTAN			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1958		35	10
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 125	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This report presents the results of studies conducted at PAF Station Peshawar, Peshawar, West Pakistan to (a) evaluate the load-carrying capacity of the pavements to be evalu- ated, (b) obtain basic engineering information that can be utilized in the design for strengthening and extending the existing landing facilities, and (c) obtain data for development of ties between the land forms as shown on airphotos and soil types.</p>			
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Pakistan Air Force Station Peshawar, Peshawar, West Pakistan]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		7b. GROUP	
LIMITED RECONNAISSANCE FOR PAVEMENT EVALUATION AND SOIL TYPE-AERIAL PHOTOGRAPH TIES; Report No. 126, PAF STATION DRIGH-ROAD, KARACHI, WEST PAKISTAN			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1957		38	12
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-343, Report No. 126	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; November 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This report presents the results of studies conducted at PAF Station Drigh-Road, West Pakistan to (a) evaluate the load-carrying capacity of the existing pavements, (b) obtain basic engineering information that could be utilized in the design for strength- ening and extending the existing landing facilities, and (c) obtain data for the development of ties between land forms, as shown in airphotos and soil types.</p>			
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Pakistan Air Force Station Drigh-Road, West Pakistan]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
AIRFIELD PAVEMENT EVALUATION; Report No. 1, CAMPBELL AIRFORCE BASE, KENTUCKY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1953		60	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-344, Report No. 1	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 010 425	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Landing facilities at Campbell Air Force Base consist of four runways, a parking apron, and connecting taxiways. Three runways and two taxiways were constructed in 1942 with a 3-in. asphaltic-concrete pavement and an 8-in. crushed-rock base course, with 6-in. portland-cement-concrete turnarounds at the ends of the runways. Another runway (NE-SW), three taxiways (A, D, and E), and the apron were constructed in 1947 with 3-1/2 in. of asphaltic-concrete pavement and a 26-in. crushed-rock base course. Field evaluations for capacity operations are summarized and results are given on tables and graphs.</p>			
KEYWORDS: Airfields; Pavement performance and evaluation; [Campbell Air Force Base, Kentucky]			

DD FORM 1473

NOV 65

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRFIELD PAVEMENT EVALUATION; Report No. 2, SHEPPARD AIR FORCE BASE, WICHITA FALLS, TEXAS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1953	42	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-344, Report No. 2	
b. PROJECT NO.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of one of a series of studies being conducted at zone-of-interior airfields to determine the load-carrying capacity of the pavements. A re-evaluation of the pavements at Sheppard Air Force Base was initiated because the pavements at the field were satisfactorily carrying planes weight 30,000 lb although an evaluation made in 1944 indicated that the field evaluation was about 10,000 lb gross load. Results are given on tables and graphs.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Sheppard Air Force Base, Wichita Falls, Texas]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRFIELD PAVEMENT EVALUATION; Report No. 3, BOCA RATON AIRFIELD, FLORIDA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1953	41	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.	Technical Memorandum No. 3-344, Report No. 3	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of one of a series of studies being conducted at zone-of-interior airfields to determine the load-carrying capacity of the pavements. The pavements at Boca Raton Airfield were evaluated to determine whether conditions had changed since a previous evaluation as the field was under consideration for use for transition flights of C-97 and C-124 type aircraft based at West Palm Beach International Airport. It was planned to use the N-S runway for landings and takeoffs and the NE-SW and NW-SE runways for taxiing.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Boca Raton Airfield, Fla.]		

DD FORM 1473

1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security Classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
2b. GROUP		
3. REPORT TITLE AIRFIELD PAVEMENT EVALUATION; Report No. 4, DAVIS-MONTHAN AIR FORCE BASE, TUCSON, ARIZONA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE December 1953	7a. TOTAL NO. OF PAGES 54	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-344, Report No. 4	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT Report presents the results of one of a series of studies being conducted at zone-of-interior airfields to determine the load-carrying capacities of the pavements. An evaluation of the pavements at Davis-Monthan Air Force Base was considered desirable because the field had withstood traffic by B-24 aircraft, 50,000-lb gross load, without signs of distress in the pavement, but had showed signs of distress under B-29 and B-50 traffic (130,000-lb and 165,000-lb gross weights, respectively). The purpose of this investigation was to determine the cause of the pavement distress and to determine the load-carrying capacities of the pavements at the base.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Davis-Monthan Air Force Base, Tucson, Arizona]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
AIRFIELD PAVEMENT EVALUATION; Report No. 5, POPE AIR FORCE BASE, NORTH CAROLINA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1954		63	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Memorandum No. 3-344, Report No. 5	
c.		9b. OTHER REPORT NO(S) (If/ other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
Report presents the results of one of a series of studies being conducted at zone-of- interior airfields to determine the load-carrying capacity of the pavements. Results are summarized on tables and graphs.			
KEYWORDS: Airfields; Pavement performance and evaluation; [Pope Air Force Base, Fort Bragg, N. Carolina]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE AIRFIELD PAVEMENT EVALUATION; Report No. 6, PALM BEACH INTERNATIONAL AIRPORT, FLORIDA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE October 1953	7a. TOTAL NO. OF PAGES 67	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-344, Report No. 6	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT Report presents the results of one of a series of studies being conducted at zone-of-interior airfields to determine the load-carrying capacity of the pavements. A re-evaluation of the pavements at Palm Beach International Airport was considered desirable because the pavements were carrying gross loads in excess of those considered to be maximum in an evaluation report published by the Jacksonville District, Corps of Engineers, in 1944.		
KEYWORDS: Airfields; Pavement performance and evaluation; [Palm Beach International Airport, West Palm Beach, Fla.]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

AD-A045 026

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG--ETC F/G 1/5
A BIBLIOGRAPHY WITH ABSTRACTS OF U. S. ARMY ENGINEER WATERWAYS --ETC(U)
AUG 77 M P MEYER, V DALE

UNCLASSIFIED

PSTIAC-5-VOL-2-PT-2

NL

3 OF 5

AD
A045026



Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRFIELD PAVEMENT EVALUATION; Report No. 7, PERRIN AIR FORCE BASE, SHERMAN, TEXAS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1955	29	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-344, Report No. 7	
a. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 756 330	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Engineer District, Tulsa Tulsa, Oklahoma
13. ABSTRACT		
<p>Results of flexural strength, CBR, and plate bearing tests, moisture and density determinations, mechanical analyses, and Atterberg limits tests conducted on the pavements, bases, and subgrades of the various landing facilities at this airfield are used in this report to evaluate the load-carrying capacity of the pavements with respect to various landing-gear assemblies and operational-life categories. The analysis of these test results indicate the over-all field evaluation to be governed by the load-carrying capacity of the N-S taxiway, which is the weakest facility essential to operation of the field.</p>		
<p>KEYWORDS: Airfields; Pavement performance and evaluation; [Perrin Air Force Base, Sherman, Texas]</p>		

DD FORM 1473

NOV 64

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
AIRFIELD PAVEMENT EVALUATION; Report No. 8, ARDMORE AIR FORCE BASE, ARDMORE, OKLA.		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1956	25	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-344, Report No. 8	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 756 372	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
	U. S. Army Engineer District, Tulsa Tulsa, Oklahoma	
13. ABSTRACT		
<p>Results of flexural strength, CBR, and plate bearing tests, moisture and density determinations, mechanical analyses, and Atterberg limits tests conducted on the pavements, bases, and subgrades of the various landing facilities at this airfield are used in this report to evaluate the load-carrying capacity of the pavements with respect to various landing-gear assemblies and operational-life categories. The analysis of these test results indicates the over-all field evaluation to be governed by the load-carrying capacity of the interior portion of the NW-SE runway, which is the weakest facility essential to operation of the field.</p>		
KEYWORDS: Airfields; Pavement performance and evaluation; [Ardmore Air Force Base, Ardmore, Oklahoma]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
DESIGN OF FLEXIBLE AIRFIELD PAVEMENTS FOR MULTIPLE-WHEEL LANDING GEAR ASSEMBLIES; Report No. 1, TEST SECTION WITH LEAN CLAY SUBGRADE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1952	84	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-349, Report No. 1	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 010 209	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The traffic tests and associated studies reported herein were performed for the purpose of developing methods for designing flexible pavements to accommodate the multiple-wheel assemblies of heavy planes. Traffic was applied to a test section, constructed of a medium-strength lean clay, with wheel assemblies simulating those of the B-29, B-50, and B-36 planes. Test results indicate that multiple-wheel design criteria developed by theoretical methods from already established single-wheel curves are reasonably correct for this test section, but are slightly on the unsafe side.</p>		
KEYWORDS: Clays; Flexible pavement design (Airfields); Multiple wheel landing gear		

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
DESIGN OF FLEXIBLE AIRFIELD PAVEMENTS FOR MULTIPLE-WHEEL LANDING GEAR ASSEMBLIES; Report No. 2, ANALYSIS OF EXISTING DATA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1955		38	9
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Memorandum No. 3-349, Report No. 2	
C.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.		AD 083 086	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This study was conducted for the purpose of re-evaluating the current, tentatively adopted methods for resolving the existing single-wheel design criteria for flexible airfield pavements into criteria for multiple-wheel assemblies. Results of tests on the first multiple-wheel test section indicated that the current method yields design criteria for pavement and base thicknesses that are slightly on the unconservative side. All available data that might provide means of comparing the effects of single and multiple loadings were reviewed and a new analysis was made. Both stress and deflection effects were examined wherever possible. A proposed alternate theoretical means of resolving well-established single-wheel design criteria to give valid multiple-wheel criteria was developed. The alternate method of resolution is based solely on equivalent deflections, and appears to give somewhat better results than the tentative method now in use. The method has the distinct advantage of being capable of extension to any assembly configuration without additional assumptions.</p>			
KEYWORDS: Flexible pavement design (Airfields); Multiple wheel landing gear			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE THE UNIFIED SOIL CLASSIFICATION SYSTEM			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE Apr 1960 (Reprinted May 1967)		7a. TOTAL NO. OF PAGES 42	7b. NO. OF REFS
9a. CONTRACT OR GRANT NO.		9b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-357	
a. PROJECT NO.		9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		AD 006 258	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT The purpose of this manual is to describe and explain the use of the "Unified Soil Classification System" in order that identification of soil types will be on a common basis throughout the agencies using this system.			
KEYWORDS: Unified soil classification system			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE TAR-RUBBER TEST SECTION AT WATERWAYS EXPERIMENT STATION; Report No. 1, DESIGN AND CONSTRUCTION OF TEST SECTION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE November 1953	7a. TOTAL NO. OF PAGES 70	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-372, Report No. 1	
8c. PROJECT NO.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
8e.	AD 024 381	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT The advent of jet aircraft has emphasized the need for flexible pavements that will perform satisfactorily under continual high-pressure-tire traffic, jet fuel spillage, jet blast, and combinations of the three. The effects of these conditions are usually most severe on runway ends and parking aprons. In a program designed to alleviate this need, the United States Air Force has requested the construction and testing of several jet-fuel-resistant test sections of flexible pavements containing rubber. This report discusses the design and construction of the test section at the Waterways Experiment Station.		
KEYWORDS: Flexible pavement design (Airfields); Jet fuel resistant materials; Rubberized-tar pavements		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Clearance Information

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
DESIGN OF UPPER BASE COURSES FOR HIGH-PRESSURE TIRES; Report No. 1, BASE COURSE REQUIREMENTS AS RELATED TO CONTACT PRESSURE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1953	90	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-373, Report No. 1	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 025 962	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The tests reported herein were conducted to determine the strength of base course required under a double surface treatment to support tire pressures ranging from 100 to 240 psi. A small test section containing a range of base course materials was constructed and subjected to accelerated traffic with airplane tires simulating taxiway traffic to obtain the data presented herein.</p>		
KEYWORDS: Accelerated traffic tests; Base courses; Pavement design; Tire-pavement interaction		

DD FORM 1 NOV 55 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate Author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE HEAT AND BLAST EFFECTS ON TAR AND TAR-RUBBER PAVEMENTS, PRESQUE ISLE AIR FORCE BASE, MAINE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1954	7a. TOTAL NO. OF PAGES 67	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-377	
a. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 030 247	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT The Waterways Experiment Station was requested to conduct special jet-blast tests on the test section with the following objectives: (a) determination of the amount of heat induced into the pavements during maintenance run-ups of the single-engine jet fighter plane, and (b) determination of the minimum temperature at which the pavements melt sufficiently to erode under jet blast.		
KEYWORDS: Exhaust blast effects; Rubberized-tar pavements; [Presque Isle Air Force Base, Presque Isle, Maine]		

DD FORM 1473
1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
CONSTRUCTION INSPECTORS MANUAL FOR FLEXIBLE PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1954	232	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum - Unnumbered	
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The purpose of this manual is to present the methods and procedures that are necessary for control of the construction of flexible pavements. Although this manual deals primarily with construction control procedures, section II contains a summary of the flexible pavement design criteria and design procedures used by the Corps of Engineers. Sections III through XI describe construction control procedures, and section XII, sampling and testing procedures. A large percentage of these are standard ASTM or AASHTO procedures, and where pertinent, have been reproduced photographically and included as an appendix for ready reference. Section XIII is a suggested outline of the authorities and responsibilities in administering a construction contract.</p>		
<p>KEYWORDS: Construction control; Flexible pavement construction; Flexible pavement design (Airfields); Manuals; Test procedures</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
HEAT AND BLAST EFFECTS OF CURRENT-TYPE JET AIRCRAFT ON AIRFIELD PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
October 1954		
7a. TOTAL NO. OF PAGES		
78		
7b. NO. OF REFS		
8a. CONTRACT OR GRANT NO.		
8b. ORIGINATOR'S REPORT NUMBER(S)		
Technical Memorandum No. 3-394		
9a. PROJECT NO.		
9b. OTHER REPORT NO(S) (A-y other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		
12. SPONSORING MILITARY ACTIVITY		
Office, Chief of Engineers Washington, D. C. 20314		
13. ABSTRACT		
<p>The objective of the investigations was to obtain pavement temperatures, and to observe and correlate other effects produced by U. S. Air Force jet aircraft operating on dry pavements at normal angle to the horizontal in accordance with selected time-power cycles as previously determined in time-movement studies. The objective was accomplished by the construction, at Eglin Air Force Base, Florida, of test panels composed of high-quality asphaltic-concrete and portland-cement-concrete pavement surfaces as currently designed for 200-psi tire pressures. The test panels were subjected to blasts from the jet exhausts of eight current types of military aircraft. Pavement temperatures were determined by means of thermocouples installed in the pavement. Visual observations and a photographic record were made for all tests.</p>		
KEYWORDS: Exhaust blast effects; Jet blast resistant materials		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
COMPARATIVE ENGINEERING TRAFFIC TESTS OF 10-, 11-, AND 12-GAGE M8 STEEL LANDING MAT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1955		41	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 8-69-04-004		Technical Memorandum No. 3-400	
c.		9d. OTHER REPORT NO(S) (Are other numbers that may be assigned this report)	
d.		AD 062 773	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>The primary objective of the test was to determine the adequacy of 12-gage (0.109 in.) and 11-gage (0.120 in.) mats as compared to 10-gage (0.134 in.) mat to meet the revised criteria. A secondary objective of the test was to obtain additional data on a 50,000-lb, dual-wheel assembly with a tire-inflation pressure of 100 psi for use in the preparation of design curves for runways to be surfaced with landing mat.</p>			
KEYWORDS: Steel landing mats; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
FIELD MOISTURE CONTENT INVESTIGATION; Interim Report No. 1			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
May 1948	50	38	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)		
	Technical Memorandum No. 3-401, Interim Report No. 1		
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>The Field Moisture Content Investigation is a continuing study of moisture movement under airfield pavements. The initial phase of the investigation was a review of published accounts of methods of observing in-place soil moisture content. As a result of this review the Bouyoucos resistance block was selected for trial. The block appeared to be satisfactory as a tool for measuring moisture contents in soil. Installations of a number of Bouyoucos blocks were made at three airfields in the Albuquerque District, CE, located at Albuquerque (Kirtland Field), Clovis, and Santa Fe, New Mexico, and periodic readings were taken for 18 months. The block installations did not yield satisfactory results. Laboratory calibrations of moisture blocks with compacted soils were unsuccessful and field block resistances did not correspond systematically with field moisture contents as determined by direct sampling. A review of the work that has been accomplished with moisture blocks and an analysis of the failure of the blocks to produce reliable moisture content information is presented in this interim report.</p> <p>KEYWORDS: Base courses; Electrical resistance methods; Field tests; Flexible pavements; Soil moisture measuring devices; Subgrades; Water content determination (Soils); [Clovis AFB, Clovis, New Mexico; Kirtland AFB, Albuquerque, New Mexico; Santa Fe AFB, Santa Fe, New Mexico]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
FIELD MOISTURE CONTENT INVESTIGATION; Report 2, OCTOBER 1945-NOVEMBER 1952 PHASE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1955		298	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Memorandum No. 3-401, Report No. 2	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 069 343	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This report is the second of a series on the study of moisture conditions under flexible airfield pavements. The first report dealt with the investigation of the Bouyoucos moisture cell as a possible instrument for measuring soil moisture. That study showed that the cells available at that time were not satisfactory for use under pavements. Because of this a "direct sampling" method was adopted in which a sample of the soil was obtained and dried in an oven. This report describes that phase of the moisture-content investigation from October 1945 to November 1952 in which the direct sampling method was first used.</p>			
KEYWORDS: Base courses; Field tests; Flexible pavements; Subgrades; Water content determination (Soils)			

DD FORM 1 NOV 55. 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
FIELD MOISTURE CONTENT INVESTIGATION; Report 3, NOVEMBER 1952-MAY 1956 PHASE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
May 1961		
7a. TOTAL NO. OF PAGES		
75		
7b. NO. OF REFS		
8a. ORIGINATOR'S REPORT NUMBER(S)		
Technical Memorandum No. 3-401, Report No. 3		
8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
AD 266 782		
9. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
10. SUPPLEMENTARY NOTES		
11. SPONSORING MILITARY ACTIVITY		
Office, Chief of Engineers Washington, D. C. 20314		
12. ABSTRACT		
<p>Tests were conducted on base course and subgrade materials at Kirtland AFB, Albuquerque, N. Mex., Sewart AFB, Nashville, Tenn., and Craig AFB, Selma, Ala., located in different climatic regions, to determine the variation in moisture content with time, and the movement and source of moisture beneath airfield pavements. The variation in moisture content with time (all elevations) followed no prescribed pattern of increase or decrease. In-place moisture contents varied directly with the soil's plastic limit, liquid limit, plasticity index, optimum moisture content, and percentage of material passing the No. 200 sieve. The moisture contents and CBR values of laboratory soaked samples (used to predict the worst future condition of the material) were generally conservative compared to the values obtained in the field for base courses, and were conservative in comparison to or approximated those obtained for subgrade materials. The variation in moisture content could not be directly related to rainfall zone or climatic region, nor was the source of the moisture definitely determined for the areas tested.</p> <p>KEYWORDS: Airport runways; Base courses; Field tests; Flexible pavements; Subgrades; Water content determination (Soils); [Craig AFB, Selma, Ala.; Kirtland AFB, Albuquerque, New Mexico; Sewart AFB, Nashville, Tenn.]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate Author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE FIELD MOISTURE CONTENT INVESTIGATION; Report 4, AUGUST 1955-MARCH 1959 PHASE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE November 1963		7a. TOTAL NO. OF PAGES 66	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-401, Report No. 4	
8c. PROJECT NO.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 432 810	
9. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT A 3-1/2-year field and laboratory investigation was made of the behavior of moisture under pavements and of the effectiveness of the Colman electrical resistance soil moisture unit in mechanically and automatically measuring the moisture content and changes therein that occur in base course and subgrade materials beneath flexible airfield pavements.			
KEYWORDS: Base courses; Electrical resistance methods; Field tests; Flexible pavements; Subgrades; Water content determination (Soils)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
A STUDY OF IN-PLACE DENSITY DETERMINATIONS FOR SOILS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1955	37	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Memorandum No. 3-415	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 080 870	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>In an attempt to eliminate inaccurate data from future investigations a study was made to: determine the amount of error inherent in each piece of apparatus in current or proposed use at the Waterways Experiment Station; to examine changes indicated as necessary to any of the apparatus; and to attempt to develop improved techniques for using the various pieces of apparatus in the field.</p>		
KEYWORDS: Flexible pavement design (Airfields); Soil density measuring devices; Unit weight determination		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 56, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
3. REPORT TITLE TESTS OF VINYL MEMBRANE AS SURFACING FOR AIRPLANE LANDING FACILITIES		2b. GROUP	
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE November 1955		7a. TOTAL NO. OF PAGES 45	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Memorandum No. 3-416	
a. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		AD 083 085	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT <p>The primary objectives of the study of vinyl membrane materials were to determine the feasibility of utilizing the materials as surfacing for airplane traffic and/or mattress-type construction for emergency airfields in the theater of operations. The objectives of the study were accomplished by: (1) the construction and traffic-testing of a wearing course test section, (2) the construction and traffic-testing of a mattress-type test section, (3) periodic observations of membranes exposed to weather for approximately two years to determine the effect of weathering, and (4) evaluation tests on membranes and soils as required. In addition to the above, tests were made to determine the feasibility of laying an asphalt wearing surface over vinyl membrane.</p>			
KEYWORDS: Membranes (Airfields); Resins (Synthetic); Vinyl resins			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
THEORETICAL LANDING MAT STUDIES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
October 1955		
7a. TOTAL NO. OF PAGES		
74		
7b. NO. OF REFS		
10		
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO. 8-69-04-004		Technical Memorandum No. 3-418
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 083 084
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Project No. 8-69-04-004, "Criteria for Designing Runways Surfaced with Landing Mat," was established in December 1950, "to provide data from traffic tests and theoretical studies on the service life of landing mats and membrane-type materials under varying conditions of subgrades, wheel loads, and contact pressures . . . for use by Engineer commands in designing, constructing or evaluating airfields surfaced with landing mats in theaters of operations." This report is concerned with the theoretical phase of the project.</p>		
KEYWORDS: Landing mats		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
SUMMARY OF INVESTIGATIONS OF EFFECTS OF JET BLAST, FUEL SPILLAGE, AND TRAFFIC ON EXPERIMENTAL TAR-RUBBER-CONCRETE PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1955	22	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Memorandum No. 3-420	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 079 771	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This summary presents the results of investigations conducted by the Corps of Engineers to date (July 1955) relative to the performance of tar-rubber paving surfaces under simulated and actual jet aircraft operations. Since the advent of jet-propelled aircraft, the U. S. Air Force has been concerned with requirements necessary for construction of aircraft landing facilities to withstand the effects of jet blast, fuel spillage, and high-pressure-tire traffic on the surfaces of runways, taxiways, and aprons. As a result, the Corps of Engineers, in conjunction with the U. S. Air Force, initiated a comprehensive investigational program in 1952 to determine the ability of tar-rubber-concrete pavement to withstand the distress that jet-type aircraft sometimes cause to certain types of bituminous surfaces.</p>		
KEYWORDS: Exhaust blast effects; Jet fuel spillage (Pavements); Rubberized-tar pavements		

DD FORM 1473

NOV 68 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
STUDY OF CHANNELIZED TRAFFIC		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1956	19	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Memorandum No. 3-426
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 085 797
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Design of many contemporary aircraft, layout of base facilities, and operational characteristics of planes necessitate movements of these aircraft along prescribed paths. These paths are clearly marked with painted stripes, and the planes follow the painted lines during taxiing as closely as possible. The result of this type of operation is that the traffic is "channelized" in a narrow path. The major portion of the undesirable effects (rutting and grooving of the pavements) of channelized traffic has been noted at B-47 bases. This survey was conducted to study the occurrence of channelized traffic and the distribution of the traffic in the channelized areas. Specifically, the survey was planned to provide information on the following items: (a) location of areas of channelization; (b) distribution of traffic in channelized areas, and (c) volume of traffic.</p>		
KEYWORDS: Channelized traffic tests; Runways		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
INVESTIGATION OF EFFECTS OF IMPROVED JOINTS AND DIRECTION OF TRAFFIC ON LIFE OF M8 LANDING MAT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1956		34	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Report No. 3-433	
c.		8d. OTHER REPORT NO(S) (Any other - are that may be assigned this report)	
d.		AD 099 683	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>A three-section test lane was constructed and 10-gage M8 landing mat, with and without improved end joints, laid transverse to traffic, was traffic-tested. In view of the results of these tests, another test lane was constructed, and 12-gage M8 mat with improved end joints, laid transverse to traffic, and 10-gage mat with improved end joints, laid parallel to traffic, were tested. Results indicate that: when traffic is applied parallel to the long direction of M8 mat planks, the service life is less than one-half that of the mat when traffic is applied in the transverse direction. Improved end joints on the 10-gage M8 mat more than doubled the service life of the mat; on the 12-gage mat the service life approximately equaled the service life of the 10-gage mat without improved joints.</p>			
KEYWORDS: Joints (Junctions); Landing mats; Traffic tests; [M8 landing mat]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 50, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
MATHEMATICAL EXPRESSION OF THE CBR RELATIONS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1956	8	4
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report No. 3-441	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 119 141	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This paper presents mathematical developments leading to general equations which represent the pattern of present CBR relations for airfield pavement design in the range of CBR values below about 10 to 12. These equations are:</p> $t = \sqrt{P \left[\frac{1}{8.1 \text{ CBR}} - \frac{1}{p^n} \right]} \text{ and } t = \sqrt{\frac{P}{8.1 \text{ CBR}} - \frac{A}{\pi}}$ <p>where t = thickness in inches, P = total load in pounds, p = tire pressure in pounds per square inch, and A = tire contact area in square inches.</p> <p>KEYWORDS: California Bearing Ratio; Flexible pavement design (Airfields); Mathematical analysis</p>		

DD FORM 1473, NOV 61

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ENGINEERING TESTS ON MOBILE MATERIALS LABORATORY M-II			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1956		33	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-03-108		Technical Report No. 3-442	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 118 919	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Soils, asphalt, and concrete tests were performed in the Mobile Materials Laboratory M-II using the testing procedures as given in Department of the Army TM 5-530, <u>Materials Testing</u>. The results of these tests were then compared with those obtained on identical materials in a permanent laboratory. Agreement of results was found to be good. The equipment and arrangement of the Mobile Materials Laboratory M-II were found to be generally satisfactory; however, numerous relatively minor revisions would make the laboratory more efficient and convenient.</p>			
KEYWORDS: Asphalt tests; Comparison; Field laboratories; Laboratory equipment; Soil tests (Laboratory)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
SOIL STABILIZATION; Report No. 1, FIELD EVALUATION OF CALCIUM ACRYLATE (WES TEST LANES 1 and 2)			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1957		56	6
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-03-107		Technical Report No. 3-455, Report No. 1	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 135 305	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Field studies were conducted by the Waterways Experiment Station to further investigate the suitability of calcium acrylate as a soil stabilizer. Two test lanes consisting of low-bearing subgrades surfaced with calcium-acrylate-treated soil were constructed and traffic-tested at a variety of wheel loads up to 26,000 lb. Traffic performance data were analyzed by comparison with existing flexible pavement design requirements. Data obtained from the previous ERDL test sections were also studied and re-evaluated on the basis of flexible pavement design criteria.</p>			
KEYWORDS: Resinous soil stabilization; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate Author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL STABILIZATION; Report No. 2, INITIAL LABORATORY AND FIELD TESTS OF QUICKLIME AS A SOIL-STABILIZING MATERIAL		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1958	39	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 8-70-03-107	Technical Report No. 3-455, Report No. 2	
c.	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 201 742	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report summarizes the results of a limited laboratory investigation and field study of quicklime as a stabilizing material for wet, fine-grained soils. The work reported represents initial efforts to investigate a stabilizer for very wet and unstable soils which in their natural state are known to be untrafficable by military vehicles.</p>		
KEYWORDS: Lime soil stabilization		

DD FORM 1473

1 NOV 65

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
SOIL STABILIZATION; Report No. 3, INVESTIGATIONS OF A CHEMICALLY MODIFIED CEMENT AS A STABILIZING MATERIAL			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1960		55	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 8-70-03-520		Technical Report No. 3-455, Report No. 3	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 241 536	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>This report summarizes the results of laboratory and field investigations to evaluate the ability of chemically modified portland cement to stabilize a wet, plastic soil. The investigation comprises a portion of the research directed toward developing means of creating or maintaining in soils the physical characteristics required to sustain various military operations.</p>			
KEYWORDS: Cement soil stabilization; Chemical soil stabilization			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE SOIL STABILIZATION; Report No. 4, INVESTIGATIONS OF PHOSPHORUS PENTOXIDE AS A SOIL-STABILIZING MATERIAL			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE November 1960		7a. TOTAL NO. OF PAGES 43	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. A. PROJECT NO. 8S70-05-001 C. Task -05 4		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-455, Report No. 4	
		8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 266 509	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT <p>This report describes and gives results of laboratory and field investigations of the ability of phosphorus pentoxide to stabilize a wet, plastic soil. These tests were conducted as part of the research program directed toward developing means of creating or maintaining in soils certain physical characteristics required to sustain various military operations.</p> <p>KEYWORDS: Chemical soil stabilization</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE SOIL STABILIZATION; Report No. 5, INVESTIGATIONS OF QUICKLIME AS A STABILIZING MATERIAL			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE March 1962		7a. TOTAL NO. OF PAGES 60	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-455, Report No. 5	
b. PROJECT NO. 8S70-05-001		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Task -05		AD 402 304	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT This report summarizes the results of laboratory and field investigations to determine the soil stabilization capability of quicklime in a moderately wet, fine-grained soil. The investigation comprises a portion of the research directed toward developing means of creating or maintaining in soils the physical characteristics required to support the traffic of certain military operations.			
KEYWORDS: Lime soil stabilization			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE SOIL STABILIZATION, LABORATORY INVESTIGATION OF SOIL STABILIZING SYSTEMS FOR MILITARY PURPOSES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 7 of a series		
5. AUTHOR(S) (Last name, first name, initial) Kozan, George R. Fenwick, William B.		
6. REPORT DATE February 1965	7a. TOTAL NO. OF PAGES 34	7b. NO. OF REFS 6
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-455, Report No. 7	
b. PROJECT NO. 1-T-O-21701-A-046		
c. Task -05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 613 171	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command	
13. ABSTRACT <p>A laboratory study was made to examine the relative soil stabilizing effectiveness of portland cement, lime, phosphoric acid, sodium silicate, and various modifications thereto, and to establish their potential for satisfying requirements pertinent to expedient military roads and airfields. The capabilities of the stabilizer systems were determined to improve the strength after 24-hr curing of two clayey soils having an initial 4-CBR strength, and to maintain the developed strength on wetting. The most generally effective stabilizer of the test soils was portland cement without secondary additives. The use of modifiers with cement was either detrimental or beneficial to stabilization, depending on the soil type. The combination of quicklime and magnesium sulfate also appears promising for military stabilization purposes, whereas neither the phosphoric acid nor the sodium silicate formulations were found to be satisfactory. Continued study in the laboratory and field of the more effective systems revealed in this study is recommended.</p> <p>KEYWORDS: Cement soil stabilization; Chemical soil stabilization; Lime soil stabilization</p>		

DD FORM 1473
1 JAN 64

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE DEMONSTRATION TEST OF PERFORMANCE OF HEAVY-LOAD AIRFIELD PAVEMENTS; KELLY AFB, SAN ANTONIO, TEXAS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE June 1957		7a. TOTAL NO. OF PAGES 50	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-459	
a. PROJECT NO.			
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 137 963	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Studies conducted in 1955 showed that B-47 aircraft are operated in narrow channelized lanes on taxiways, which results in application of traffic at about six times the rate of other aircraft. This intensity of traffic led to the modification of certain aspects of the existing pavement design criteria to accommodate the greater number of repetitions. At the request of the Air Force, a demonstration-type test section, consisting of both rigid and flexible pavements, was constructed at Kelly Air Force Base, San Antonio, Texas, as part of a comprehensive program of laboratory and traffic testing to validate the revised pavement design criteria.			
KEYWORDS: Airport runways -- testing; Channelized traffic tests; Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Kelly Air Force Base, San Antonio, Texas]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ENGINEERING TESTS OF EXPERIMENTAL T7 MAGNESIUM AND MODIFIED STANDARD STEEL AIRPLANE LANDING MATS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1957		95	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. 8-69-04-002		Technical Report No. 3-461	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 138 269	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report describes engineering tests conducted to determine: if the experimental T7 magnesium mat meets the project requirements and its utility in multilayer construction; practical methods of employing standard landing mats (M6 and M8) in multilayer construction; and the desirability and practical methods of employing improved end joints for the M8 mat to alleviate the deficiencies of the present end joint. Because of the widespread interest in the use of trussed panels as expedient surfacing, tests were also made of trussed M8 panels to provide factual information on the practicability of such panels. In addition, exposure tests to determine the best treatment for corrosion protection of the T7 mats are described.</p>			
KEYWORDS: Magnesium landing mats; Steel landing mats; Traffic tests; [T7 landing mats]			

DD FORM 1473

F02M
NOV 68REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 1, BLACKSTONE ARMY AIRFIELD, CAMP PICKETT, VIRGINIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE October 1957		7a. TOTAL NO. OF PAGES 20	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 1	
a. PROJECT NO.			
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. In this report the load-carrying capacities of the pavements at Blackstone Army Airfield are evaluated with respect to various landing gear and pavement life categories. Consequently, the report summarizes all available information relative to the factors that affect the load-carrying capacity of the runways, taxiways, aprons, and hardstands.			
KEYWORDS: Rigid pavement performance and evaluation (Airfields); [Blackstone Army Airfield, Camp Pickett, Va.]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ARMY AIRFIELD PAVEMENT EVALUATION; Report 2, DAVISON ARMY AIRFIELD, FORT BELVOIR, VIRGINIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1957		28	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Report No. 3-466, Report No. 2	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Davison Army Airfield with respect to various landing-gear types and life categories are presented herein, as determined from all available information relative to the factors affecting the load-carrying capacity of the pavements on the runway, taxiways, aprons, and heliport.</p>			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Davison Army Airfield, Fort Belvoir, Va.]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		16. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		20. GROUP	
ARMY AIRFIELD PAVEMENT EVALUATION; Report 3, FORT POLK ARMY AIRFIELD, FORT POLK, LOUISIANA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
6. AUTHOR(S) (First name, middle initial, last name)			
8. REPORT DATE		7A. TOTAL NO. OF PAGES	7B. NO. OF REFS
October 1957		25	
8A. CONTRACT OR GRANT NO.		9A. ORIGINATOR'S REPORT NUMBER(S)	
B. PROJECT NO.		Technical Report No. 3-466, Report No. 3	
C.		9B. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>The purpose of the study described was to determine the load-carrying capacities of the pavements at Fort Polk Army Airfield with respect to various landing-gear assemblies and life categories. The report includes data obtained from the design specifications for construction of the airfield, in-place and laboratory tests performed during construction, and in-place and laboratory tests performed for evaluation.</p>			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Fort Polk Army Airfield, Fort Polk, La.]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

KEYWORDS: Flexible pavement performance and evaluation (Airfields);[Simmons Army Airfield, Fort Bragg, N.C.]

REPLACES DD FORM 1475, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 5, REDSTONE ARMY AIRFIELD, HUNTSVILLE, ALABAMA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1958	7a. TOTAL NO. OF PAGES 19	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 5	
a. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. In this report the load-carrying capacities of the pavements at Redstone Army Airfield are evaluated with respect to various landing gear and pavement life categories. Consequently, this report summarizes all available information relative to the factors that affect the load-carrying capacity of the runway, taxiways, and service apron.		
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Redstone Army Airfield, Huntsville, Ala.]		

DD FORM 1473 REPLACES DD FORM 1473, 1 JAN 62, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ARMY AIRFIELD PAVEMENT EVALUATION; Report 6, FELKER ARMY AIRFIELD, FORT EUSTIS, VIRGINIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1958 (Revised May 1959)		23	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO.		Technical Report No. 3-466, Report No. 6	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Felker Army Airfield with respect to various landing gear types and life categories are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the runways, taxiways, aprons, and hardstands.</p>			
<p>KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Felker Army Airfield, Fort Eustis, Va.]</p>			

DD FORM 1473

1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		1a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 7, WALKER ARMY AIRFIELD, FORT MONROE, VIRGINIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE August 1958		7a. TOTAL NO. OF PAGES 23	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 7	
a. PROJECT NO.			
c.		9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT <p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. In this report the load-carrying capacities of the pavements at Walker Army Airfield are evaluated with respect to various landing gear and pavement life categories. Consequently, this report summarizes all available information relative to the factors that affect the load-carrying capacity of the runway, taxiways, and apron.</p>			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Walker Army Airfield, Fort Monroe, Va.]			

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
ARMY AIRFIELD PAVEMENT EVALUATION; Report 8, GARY ARMY AIRFIELD, SAN MARCOS, TEXAS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1958		22	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Report No. 3-466, Report No. 8	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Gary Army Airfield with respect to various landing gear and pavement life categories are presented herein. Consequently, the report summarizes all available information relative to the factors that affect the load-carrying capacity of the runways, taxiways, and aprons.</p>			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Gary Army Airfield, San Marcos, Texas]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 9, LAWSON ARMY AIRFIELD, FORT BENNING, GEORGIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE August 1958		7a. TOTAL NO. OF PAGES 34	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 9	
b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.			
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Lawson Army Airfield with respect to various aircraft landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors affecting the load-carrying capacity of the pavements on the runways, taxiways, and aprons.			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Lawson Army Airfield, Fort Benning, Ga.]			

REPLACES DD FORM 1472, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

1. ORIGINATING ACTIVITY (Corporate number)		2. REPORT TITLE	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		ARMY AIRFIELD PAVEMENT EVALUATION; Report 10, POST ARMY AIRFIELD, FORT SILL, OKLAHOMA	
3. DESCRIPTIVE NOTES (Type of report and inclusion notes)			
4. AUTHOR(S) (First name, middle initial, last name)			
5. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1958		21	
6. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S)	
7. PROJECT NO.		Technical Report No. 3-466, Report No. 10	
8. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)			
9. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
Report describes studies and analyses made to determine the load-carrying capacities of the pavements at Post Army Airfield with respect to various aircraft landing gear types and pavement life categories. Consequently, the report summarizes all available information relative to the factors affecting the load-carrying capacity of the runways, taxiways, and parking aprons.			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Post Army Airfield, Fort Sill, Okla.]			

DD FORM 1473

NOV 64, WHICH IS

Unclassified

Security Classification

<div>Unclassified</div> <div>Security Classification</div>		
DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
ARMY AIRFIELD PAVEMENT EVALUATION; Report 11, LIBBY ARMY AIRFIELD, FORT HUACHUCA, ARIZONA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1959	14	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report No. 3-466, Report No. 11	
9. PROJECT NO.		
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Libby Army Airfield with respect to various landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the runway, taxiway, and apron. The report includes data obtained from design specifications, in-place and laboratory tests performed during construction, and in-place and laboratory tests performed for evaluation purposes.</p>		
<p>KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Libby Army Airfield, Fort Huachuca, Ariz.]</p>		

DD FORM 473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ARMY AIRFIELD PAVEMENT EVALUATION; Report 12, GRAY ARMY AIRFIELD, FORT LEWIS, WASHINGTON			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1959		20	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Report No. 3-466, Report No. 12	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Gray Army Airfield with respect to various landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors affecting the load-carrying capacities of the pavements on the runways, taxiways, parking apron, and hardstands.			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Gray Army Airfield, Fort Lewis, Wash.]			

1473

REPLACES DD FORM 1075, 1 JUN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - P & D		
<small>Security classification of title, body of abstract and including annotation must be entered when the overall report is classified.</small>		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		1b. GROUP
3. REPORT TITLE		
ARMY AIRFIELD PAVEMENT EVALUATION; Report 13, CAIRNS ARMY AIRFIELD, FORT RUCKER, ALABAMA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1959	43	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Report No. 3-466, Report No. 13	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Cairns Army Airfield with respect to various aircraft types and intensities of use are presented herein, as determined from all available information relative to the factors affecting the load-carrying capacity of the pavements on the runways, taxiways, aprons, and hardstands.</p>		
<p>KEYWORDS: Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Cairns Army Airfield, Fort Rucker, Ala.]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 14, LAGUNA ARMY AIRFIELD , YUMA TEST STATION, YUMA, ARIZONA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE November 1959	7a. TOTAL NO. OF PAGES 24	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 14	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Laguna Army Airfield with respect to various landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the runway, taxiway, and apron. The pavements at Laguna AAF have recently been rehabilitated, and this report includes data from tests made for design, for construction control during the construction, and from in-place and laboratory tests performed for evaluation purposes. KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Laguna Army Airfield, Yuma Test Station, Yuma, Arizona]		

DD FORM 1473
1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ARMY AIRFIELD PAVEMENT EVALUATION; Report 15, MICHAEL ARMY AIRFIELD, DUGWAY PROVING GROUND, DUGWAY, UTAH			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1960		24	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Report No. 3-466, Report No. 15	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Michael Army Airfield with respect to various landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the runway, taxiway, and apron. The report includes data obtained from design specifications and in-place and laboratory tests performed for evaluation purposes.</p>			
<p>KEYWORDS: Flexible pavement performance and evaluation (Airfields);[Michael Army Airfield, Dugway Proving Ground, Dugway, Utah]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		20. REPORT SECURITY CLASSIFICATION Unclassified
		21. GROUP
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 16, WOLTERS ARMY AIRFIELD, CAMP WOLTERS, TEXAS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE May 1960	72. TOTAL NO. OF PAGES 17	75. NO. OF REFS
8a. CONTRACT OR GRANT NO.	84. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 16	
b. PROJECT NO.		
c.	85. OTHER REPORT NOTE (Any other numbers that may be assigned this report)	
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Wolters Army Airfield with respect to various landing gear types and pavement life categories are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the runways, taxiways, and apron. The report includes data obtained from as-built drawings and also from in-place and laboratory tests performed for evaluation purposes.		
KEYWORDS: Flexible pavement performance and evaluation (Airfields); [Wolters Army Airfield, Camp Wolters, Tex.]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
ARMY AIRFIELD PAVEMENT EVALUATION; Report 17, CRISSY ARMY AIRFIELD, PRESIDIO OF SAN FRANCISCO, CALIFORNIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1960		19	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Report No. 3-466, Report No. 17	
C.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
D.			
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of the pavements on various Army airfields and heliports in the United States. The load-carrying capacities of the pavements at Crissy Army Airfield with respect to various aircraft types and intensities of use are presented herein, as determined from all available information relative to the factors that affect the load-carrying capacities of the pavements on the runway and apron.</p>			
<p>KEYWORDS: Airfields; Flexible pavement performance and evaluation (Airfields);[Crissy Army Airfield, San Francisco, Calif.]</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE ARMY AIRFIELD PAVEMENT EVALUATION; Report 18, BUTTS ARMY AIRFIELD, FORT CARSON, COLORADO			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE July 1960		7a. TOTAL NO. OF PAGES 13	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-466, Report No. 18	
b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.			
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report presents the results of one of a series of studies being conducted to determine the load-carrying capacities of pavements at various Army airfields and heliports in the United States. Although the facilities at Butts Army Airfield are not of standard design for Army airfield construction in the United States, they are being used and an evaluation was desired. The long-range program at Fort Carson is to construct a new airfield consisting of paved surfaces at a different site from that at which the present airfield is located.			
KEYWORDS: Flexible pavement performance and evaluation (Airfields); Landing mats; Landing pads; Rigid pavement performance and evaluation (Airfields); [Butts Army Airfield, Fort Carson, Colo.]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PROOF-TEST SECTION, COLUMBUS AIR FORCE BASE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1958		48	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Report No. 3-490	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 209 219	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Accelerated traffic tests were conducted on a portion of the runway pavements at Columbus AFB, Mississippi, from 4 to 28 September 1958. The primary purpose of the tests was to proof-test the Army Corps of Engineers flexible pavement design and construction methods for interior of runways for B-52 traffic. It was desired that the juncture between the flexible and rigid pavements be included in the tests. Therefore, in order to test the juncture, a portion of the rigid pavement was also subjected to traffic. This report describes the runway pavements, test section, test conditions, and test results.</p>			
KEYWORDS: Accelerated traffic tests; Airport runways; Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Columbus Air Force Base, Mississippi]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
PREFABRICATED AIRFIELD AND ROAD SURFACING MEMBRANE INVESTIGATION; Report No. 1, ENGINEERING TESTS, JULY 1953-DECEMBER 1954		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		
February 1959		7a. TOTAL NO. OF PAGES
		39
7b. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
8. PROJECT NO. 8-69-03-001		Technical Report No. 3-492, Report No. 1
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Laboratory and/or field tests were conducted on nine coated fabrics to determine their suitability as subgrade-protective membranes for surfacing roads and airfields when placed under or on landing mats or as surfacing without mats. In the laboratory, the weight, tensile strength, elongation, and resistance to flame, heat, and weathering of the membranes were determined. In the field, test sections of various combinations of membranes placed under or on landing mats, and placed on the subgrade with no landing mat, were subjected to traffic of a 50,000-lb single-wheel load applied in a precise pattern. Two forms of a reclaimed rubber adhesive were also tested to observe their ability to seal lapped joints between membranes and to bond the membranes to the top surface of the mats.</p>		
KEYWORDS: Fabrics; Prefabricated membranes; Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PREFABRICATED AIRFIELD AND ROAD SURFACING MEMBRANE INVESTIGATION; Report No. 2, ENGINEERING TESTS, JANUARY 1956-DECEMBER 1959			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1962		98	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-03-101		Technical Report No. 3-492, Report No. 2	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 295 472	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Laboratory and field tests were conducted on four coated fabrics to determine their suitability (a) as dustproofing and waterproofing media when placed directly on soil subgrades, and (b) as an expedient means for dustproofing and waterproofing soil subgrades beneath the M8 steel landing mat. A T1, vinyl-coated cotton duck membrane which had been tested previously was used as a basis for comparison. Nylon membranes tested were: (a) the T12, a neoprene-coated nylon membrane; (b) the T13, a vinyl-coated nylon membrane; and (c) the T14, a neoprene-coated nylon membrane with embossed surface to improve skid resistance when wet. From laboratory tests of 11 adhesives, four were selected for field tests to determine their suitability for sealing membrane lap joints and resisting the exhaust blast of jet aircraft.</p>			
KEYWORDS: Fabrics; Prefabricated membranes; Traffic tests			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE FUEL SPILLAGE, TRAFFIC, AND BLAST TESTING OF MAINTENANCE MATERIALS FOR RUBBERIZED-TAR CONCRETE AIRFIELD PAVEMENTS; Report No. 1, 1956-1957 TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE February 1959		7a. TOTAL NO. OF PAGES 60	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-493, Report No. 1	
8b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		AD 211 969	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT Report presents the results of field tests performed at the Waterways Experiment Station to observe the behavior of all available materials recommended for use as seal coats or crack fillers in the maintenance of rubberized-tar concrete pavements. The materials were evaluated for ease of application and quality of performance under conditions similar to those to which they would be subjected when used in the maintenance of rubberized-tar concrete airfield pavements.			
KEYWORDS: Jet blast resistant materials; Jet fuel resistant materials; Rubberized-tar pavements; Seal coats			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
COMBINED CBR CRITERIA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
March 1959	15	5	
8a. CONTRACT OR GRANT NO.	8b. ORIGINAL REPORT NUMBER(S)		
	Technical Report No. 3-495		
9. PROJECT NO.	9d. OTHER REPORT NO(S) (Assign other numbers that may be assigned this report)		
	AD 213 706		
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Analysis of all available service-behavior data from test sections and prototype airfields indicates that single-wheel CBR design criteria can be expressed as a function of two basic parameters, $\frac{t}{\sqrt{A}}$ and $\frac{CBR}{p}$, where t = thickness of overlying construction, A = tire contact area of each wheel, p = contact (or tire) pressure of single or equivalent single-wheel load. With these parameters one arrives at a single plotted curve that separates service-behavior data with regard to failures and nonfailures. This curve also represents the complete pattern of basic-strength requirements for flexible airfield pavements for single-wheel loadings. Previous work has developed methods of reducing multiple-wheel loadings to their equivalent single-wheel loading. The analysis has also shown that the upper elements of pavements should include an extra thickness for durability and for reducing differential settlement. No mathematical expression has yet been developed for this extra-thickness requirement.</p>			
KEYWORDS: California Bearing Ratio; Flexible pavement design (Airfields)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

<div>Unclassified</div> <div>Security Classification</div>		
DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
EVALUATION TESTS OF THREE-QUARTER-TON TRAILER EQUIPPED WITH SOIL TESTING EQUIPMENT SET NO. 1 REVISED		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1959	23	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
8. PROJECT NO. 8-70-03-108	Technical Report No. 3-499	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 216 186	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Mechanical adequacy tests of the Soil Testing Equipment Set No. 1 Revised mounted in a 3/4-ton cargo trailer were made to determine the ruggedness of the equipment and mountings. These tests, performed by the Engineer Research and Development Laboratories, showed the modified trailer to be satisfactory for storing the soil testing equipment set, and for transporting it over gravel roads, cross-country, and over undeveloped terrain. Modifications of the mountings and in the placement of the equipment in the trailer were made to prevent damage or facilitate access to the equipment. Soil tests were performed by the Waterways Experiment Station to determine the adequacy of arrangement of the equipment for performing in-place and laboratory soil tests. The procedures used for conducting the soils tests are those given in Department of the Army TM 5-530, <u>Materials Testing</u>, dated December 1957. The construction, arrangement, and equipment were generally satisfactory, but minor revisions and additional equipment are recommended to increase the efficiency of the mobile laboratory.</p>		
KEYWORDS: Field laboratories; Soil mechanics laboratories		

DD FORM 1473, 1 NOV 66
REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE APPROACH ROADS, GREENLAND 1955 PROGRAM		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 1 in a series		
5. AUTHOR(S) (First name, middle initial, last name) Stevens, H. W.		
6. REPORT DATE June 1959	7a. TOTAL NO. OF PAGES 99	7b. NO. OF REFS 0
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-505, Report No. 1	
9. PROJECT NO. a. Subproject No. 8-70-05-400; Trafficability of Soils as Related to Mobility of Military Vehicles	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 712 512	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Chief of Engineers, DA Washington, D. C. 20315
13. ABSTRACT Primary responsibility for Project 1, Approach Roads, Greenland 1955 program, was assigned to the Waterways Experiment Station (WES). WES requested the Arctic Construction and Frost Effects Laboratory to assume the work of planning and conducting the investigation, including preparation of progress reports and a final report. WES reviewed and approved the plan of tests and provided support throughout the entire project, furnishing personnel and equipment. This report presents the results of an investigation conducted during the summer of 1955 at the edge of the ice cap near Thule, Greenland. It is a progress report on the development of methods and techniques of constructing roads on permafrost terrain and glacier ice surfaces, and serves as a basis for plans for continuation of the studies. Although it is considered that the conclusions reached are sound, continuation of the studies might possibly result in their modification. Recommendations for continuing the investigations were made. KEYWORDS: Arctic regions; Permafrost; Road construction; [Greenland]		

DD FORM 1473, 1 NOV 55 REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE APPROACH ROADS, GREENLAND 1956-1957 PROGRAM			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 2 in a series			
5. AUTHOR(S) (First name, middle initial, last name) Stevens, H. W.			
6. REPORT DATE April 1963		7a. TOTAL NO. OF PAGES 166	7b. NO. OF REFS 15
8a. CONTRACT OR GRANT NO. a. PROJECT NO. 1-T-O-21701-A-046 Trafficability and Mobility Research c. Task -02, Surface Mobility		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-505, Report No. 2	
d.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 404 483	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C. 20315	
13. ABSTRACT The report describes progress during the summers of 1956-1957 on development of methods, techniques, and criteria for constructing roads on glacial ice surfaces and adjacent ice-free terrain. Terrain, weather, ice movement, ice ablation, meltwater flow, performance of road fills, subsurface temperatures, and thaw penetration were studied. Soil properties and physiography of an area about 15 miles square near Camp TUTO were investigated to obtain data on sources of borrow materials and other data needed in design of roads, building foundations, etc. Road construction was primarily a continuation of that begun previously, with the objectives of making existing roads more useful and investigating several proposed designs. An 80-ft-long, wooden-pile-bent bridge was constructed on the ice by 6 men in 2-1/2 weeks; it supported the heaviest mobile equipment used and performed satisfactorily for 1-1/2 thaw seasons. Appendices A and B present supplementary data on personnel, equipment, weather, borings, and ice surface measurements. Appendix C, by Mr. S. D. Wilson, describes use of the Wilson Slope Indicator at TUTO.			
KEYWORDS: Arctic regions; Permafrost; Road construction; [Greenland]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ENGINEERING TESTS OF T10 STEEL AIRPLANE LANDING MAT (MODIFIED M8), DUST-ALLEVIATION TYPE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1959		109	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-03-440		Technical Report No. 3-507	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 217 750	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>The main disadvantages of the current standard steel landing mat (the 10-gage M8) are: (a) it is a pierced-type airfield surfacing and thus provides little protection to the subgrade from rain or blasts from jet aircraft; and (b) the end joint is weak, often causing failure in M8 panels because of "end curl." In an attempt to remedy these two detrimental features, the M8 mat was redesigned; revisions included elimination of the lightening holes, installation of new improved moment-transferring end joints, and incorporation of a new type of locking lug. The resulting mat was designated the T10, dust-alleviation type, landing mat. This report describes results of engineering tests of T10 landing mat formed from both 0.125-in.- and 0.140-in.-thick steel sheets.</p>			
KEYWORDS: Steel landing mats; Traffic tests; [T10 landing mat]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified Security Classification		
DOCUMENT CONTROL DATA - R & D (Security Classification of title, cover of abstract and indexing annotation must be entered when the overall report is classified.)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE PREFABRICATED AIRFIELD AND ROAD SURFACING MEMBRANES; Report No. 1, TEMPERATE ZONE STORAGEABILITY TESTS, 1953-1956		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE July 1959	7a. TOTAL NO. OF PAGES 24	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. b. PROJECT NO. 8-69-03-001	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-515, Report No. 1	
c. d.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 219 383	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT Laboratory and field storageability tests were conducted on six coated fabrics to determine their capabilities for storage in the Temperate Zone over a period of three years. In the laboratory, the tensile strengths and elongation properties of the membranes were determined before and after the storage period. In the field, rolls of membranes were placed in racks and exposed to prevailing weather conditions with no protection from rain or sun. Inspections were made of the materials at periodic intervals and photographs were taken to show important developments. Measurements of temperature, precipitation, and relative humidity were recorded throughout the storage period.		
KEYWORDS: Prefabricated membranes; Stockpiling; Temperate regions		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
PREFABRICATED AIRFIELD AND ROAD SURFACING MEMBRANES; Report No. 2, TORRID ZONE STORAGEABILITY TESTS, 1954-1957			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1960		29	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. 8-70-03-420		Technical Report No. 3-515, Report No. 2	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 238 027	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Laboratory tests and field exposure tests were conducted on four coated fabrics to determine their suitability for storage under Torrid Zone climatic conditions for a period of three years. The performance under exposure of dry-back adhesive, which is used to fasten strips of membrane together, was also observed. In the laboratory, the tensile strength of each membrane was determined before, during, and after the storage period; the effects of weathering were also determined by measuring thicknesses and weighing samples of the membranes before and after the three-year storage period.</p> <p>In the field, membrane rolls with wooden and cardboard cores were placed in a rack and exposed to prevailing weather conditions with no protection from rain or sun. The membrane materials were inspected periodically, and photographs were taken to record important developments. Temperature, rainfall, and relative humidity data were also recorded throughout the storage period.</p>			
KEYWORDS: Prefabricated membranes; Stockpiling; Tropical regions			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE DEFLECTION OF MOVING TIRES; TESTS WITH A 12.00-22.5 TUBELESS TIRE ON ASPHALTIC CONCRETE, SAND, AND SILT, 1959-1960			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 2 of a series			
5. AUTHOR(S) (First name, middle initial, last name) Green, A. J.			
6. REPORT DATE August 1961		7a. TOTAL NO. OF PAGES 48	7b. NO. OF REFS 3
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-516, Report No. 2	
9. PROJECT NO. 8S70-05-001, Trafficability and Mobility Research c. Subproject -03, Mobility Fundamentals and Model Studies d.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 265 742	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Chief of Engineers, DA Washington, D. C. 20315	
13. ABSTRACT Five deflection gages, each consisting of a circular and a linear potentiometer coupled together, were installed in a 12-ply rating tire, mounted on a loaded 2-1/2-ton truck, to measure both translational and rotational movement of points on the inside surface of the tire. The truck was run on asphalt, sand, and silt surfaces. Vehicle speed, number of passes, wheel load, tire pressure, and temperature of the air within the tire were varied. Test results showed the shape of a moving tire to be determined primarily by wheel load, tire-inflation pressure, and type and condition of surface traversed. At constant inflation pressure, temperature variations within the range experienced during this test program did not affect tire-deflection patterns. The magnitude of the tire deflection decreased with repetitive traffic on the silt surface but not on the sand. Results also indicate that gages with two degrees of freedom are adequate for measuring tire deflection. KEYWORDS: Flexible pavements; Pneumatic tires; Sands; Silts; Tire deflection; Tire test equipment; Tire-pavement interaction			

DD FORM 1473, 1 NOV 61 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
COMPACTION REQUIREMENTS FOR SOIL COMPONENTS OF FLEXIBLE AIRFIELD PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1959	27	21
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report No. 3-529	
9. PROJECT NO.		
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 230 082	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report presents the results of an analytical study made to develop criteria for determining the degree of compaction required at different depths in soils beneath flexible airfield pavements to prevent consolidation of the soil under wheel loads and consequent deformation of the pavement. The report pertains particularly to pavements constructed for use by airplanes with high-pressure tires and multiple wheels.</p>		
KEYWORDS: Compaction requirements; Compaction (Soils); Flexible pavements		

DD FORM 1473

NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE DUSTPROOFING AND WATERPROOFING OF SOILS; Report No. 1, FIELD AND LABORATORY INVESTIGATIONS OF SELECTED MATERIALS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE December 1959		7a. TOTAL NO. OF PAGES 85	7b. NO. OF REFS 7
8a. CONTRACT OR GRANT NO. A. PROJECT NO. 8-70-00-000 Subproject No. 8-70-03-500		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-530, Report No. 1	
9. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		AD 231 925	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT The primary objectives of the present investigation were to: (a) evaluate, by means of field tests, several materials as dustproofing and/or waterproofing agents for soil under varied weather conditions and a controlled amount of traffic over a one-year period, and (b) develop correlative laboratory evaluation tests to supplement the field studies, and to establish laboratory procedures for evaluating other potential dustproofing and waterproofing agents. KEYWORDS: Dust control; Field tests; Laboratory tests; Waterproofing (Soils)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
2. REPORT TITLE		2b. GROUP	
DUSTPROOFING AND WATERPROOFING OF SOILS; Report No. 2, LABORATORY STUDIES OF SOIL WATER- PROOFING MATERIALS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1963		46	13
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. 1-T-0-21701-A-046		Technical Report No. 3-530, Report No. 2	
c. Task 05		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 450 631	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		U. S. Army Materiel Command Washington, D. C. 20314	
13. ABSTRACT			
<p>This report describes and gives the results of two separate phases of laboratory investigations conducted at the U. S. Army Engineer Waterways Experiment Station to:</p> <p>(a) examine the ability of several materials, found in a previous study to be effective dustproofers and waterproofers of a lean clay, to waterproof soils of various types; and (b) determine the soil waterproofing potential of numerous untested formulations selected for examination on the basis of a review of soil additive systems developed since 1955 in the related military soil stabilization project.</p>			
<p>KEYWORDS: Dust control; Laboratory tests; Waterproofing (Soils)</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		2b. GROUP
PROOF-TEST SECTION, COLUMBUS AIR FORCE BASE, STRUCTURAL INVESTIGATION OF PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE		7a. TOTAL NO. OF PAGES
December 1959		56
7b. NO. OF REFS		
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
a. PROJECT NO.		Technical Report No. 3-533
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 231 549
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>A portion of the runway pavement at Columbus AFB, Miss., was subjected to 5000 coverages of accelerated traffic with a test load cart operated to simulate B-52 traffic to check the Corps of Engineers design criteria for flexible pavements. An adjoining rigid pavement section was also subjected to traffic. The accelerated traffic resulted in some settlement and cracking in both the flexible and rigid pavements. This report describes after-traffic tests of the structural properties of both types of pavements and of the subsurface materials made to determine the causes of the pavement distress and to evaluate the design criteria used for the pavements.</p>		
<p>KEYWORDS: Accelerated traffic tests; Flexible pavement performance and evaluation (Airfields); Rigid pavement performance and evaluation (Airfields); [Columbus Air Force Base, Mississippi]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
CRITERIA FOR DESIGNING RUNWAYS TO BE SURFACED WITH LANDING MAT AND MEMBRANE-TYPE MATERIALS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1960	91	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-69-04-064	Technical Report No. 3-539	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 236 364	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Accelerated traffic tests, simulating aircraft taxiing operations, were conducted on test sections, constructed with a range of subgrade and base course strengths, that represented unsurfaced or membrane-surfaced airstrips and runways surfaced with standard M6, M8, and M9 landing mat. The purpose of these traffic tests was to provide data on the service life of the unsurfaced and mat-surfaced runways under various conditions of wheel load, tire pressure, and base and subgrade. From these data, design curves based on similar CBR design curves for bituminous pavements were to be developed for unsurfaced, membrane-, and mat-surfaced runways.</p>		
<p>KEYWORDS: Accelerated traffic tests; Design standards; Landing mats; Membranes (Airfields); Unsurfaced runways; [M6, M8, and M9 landing mats]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
PORTABLE SURFACING FOR MILITARY ACCESS ROADS: Report No. 1, LABORATORY AND TANK TRAFFIC TESTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1960		42	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. 8-69-03-001		Technical Report No. 3-542, Report No. 1	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 238 028	
9. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Laboratory and field tests were conducted on three coated fabrics to determine their suitability (a) as dustproofing and waterproofing media when placed directly on soil subgrades, and (b) as an expedient means for rapid construction of access roads to temporary bridge sites. Membranes tested were: (a) the T1, a No. 8 cotton duck, vinyl-coated membrane; (b) the T12, a neoprene-coated nylon membrane; and (c) the T13, a vinyl-coated nylon membrane. Three types of adhesives were also field-tested to determine their ability to seal membrane lap joints.</p>			
KEYWORDS: Fabrics; Laboratory tests; Membranes (Roads); Traffic tests; [T1, T12, and T13 membranes]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
INVESTIGATION OF BEHAVIOR OF FLEXIBLE AIRFIELD PAVEMENTS, EFFECT OF CHANNELIZED, HEAVY-AIRCRAFT TRAFFIC			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1960		40	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO.		Technical Report No. 3-548	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 240 275	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT			
<p>This report describes results of visual observations of the behavior of flexible airfield pavements subjected to channelized traffic of heavy aircraft at 23 Air Force bases over a period of four years, and presents data pertinent thereto. Also included in the report are results of laboratory tests conducted on samples of pavement taken from 11 of the 23 airfields to determine any change that may have occurred in the physical properties of the asphaltic concrete mix after the pavement was subjected to traffic. The samples were subjected to density, stability, flow, extraction, and gradation tests; in addition, the ductility, softening point, penetration, and specific gravity of the asphalt cement and the specific gravity and gradation of the aggregate were determined.</p>			
<p>KEYWORDS: Channelized traffic tests; Flexible pavement performance and evaluation (Airfields)</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

M. P.

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE VALIDATION OF SOIL-STRENGTH CRITERIA FOR AIRCRAFT OPERATIONS ON UNPREPARED LANDING STRIPS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name) C. D. Burns			
6. REPORT DATE July 1960		7a. TOTAL NO. OF PAGES 46	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-69-04-064		Technical Report No. 3-554	
c.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 241 546	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Chief of Engineers, DA Washington, D. C. 20314	
13. ABSTRACT The Waterways Experiment Station participated in aircraft operational tests conducted by the Air Force Operational Test Center at two test sites, Eglin AFB, Florida, and Pope AFB, North Carolina, which consisted of unprepared, sandy soil with sparse vegetation. Penetrometer readings obtained at the two sites before and during the tests were correlated with CBR and converted to approximate CBR values. Conclusions were that: (a) both the C-123B and C-130A can operate successfully on sand subgrades with surface ruts as deep as 4 to 6 in.; (b) the average soil strength for the 6- through 12-in. depth can be used for evaluating the load-carrying capacity of a sand subgrade; (c) increasing wheel loads at constant tire-inflation pressures up to 116,000 lb had little or no effect on depth of ruts; (d) increasing tire pressure for a constant or increasing wheel load resulted in more severe rutting and disturbance of the sand subgrade; (e) minimum subgrade strength requirements (based on average strength values for the 6- through 12-in. depth), as determined from tests with C-123B and C-130A aircraft, were in good agreement with strength requirements indicated by the previously developed CBR design curves; and (f) tentative strength criteria established by WES and ORDL for the operation of aircraft on unsurfaced soils are as good as can be established from data available at the present time. KEYWORDS: Military bases; Soil strength; Unsurfaced airfields; [Eglin AFB, Fla.; Pope AFB, N. Carolina]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ENGINEERING TESTS OF T12 PLASTIC AIRPLANE LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE May 1961	7a. TOTAL NO. OF PAGES 57	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-563	
a. PROJECT NO. 8-70-03-460		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 265 630	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT <p>This report describes results of an investigation conducted to evaluate an experimental, commercially fabricated, plastic landing mat designated as Airplane Landing Mat, Plastic, T12. The mat is a sandwich structure made of glass-fabric-reinforced phenolic resin honeycomb core and bonded top and bottom to glass-fabric-reinforced phenolic resin facings. For these tests, panel connections were made with tongue-and-groove side and end connectors held together with drive rivets spaced 6 in. apart. The investigation consisted of laboratory tests to determine the structural properties of the mat and engineering traffic tests to obtain factual information for use in comparing the performance of the T12 plastic mat with that of the standard M8 steel mat and with project requirements.</p>		
KEYWORDS: Laboratory tests; Plastic landing mats; Traffic tests; [T12 landing mat]		

DD FORM 1473
1 NOV 60

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R 10		
1. ORIGINATING ACTIVITY (Corporate history)		2. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
3. REPORT TITLE		
ENGINEERING TESTS OF EXPERIMENTAL T8 MAGNESIUM AIRPLANE LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1961	118	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-03-102	Technical Report No. 3-574	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 265 629	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Engineering tests conducted on an experimental extruded magnesium airplane landing mat (T7) showed the performance of this mat to be outstanding and well above project wheel-load and service-life requirements, but placing speed was considerably below the minimum project requirement. In an effort to obtain a placing speed comparable to that of the standard steel and aluminum mats, the side connectors of the T7 mat were redesigned, a wider panel was utilized, and other improvements indicated to be desirable by the engineering tests were incorporated; the resulting mat was designated the T8 magnesium landing mat. This report describes the results of engineering tests to evaluate the T8 mat.</p>		
KEYWORDS: Magnesium landing mats; Traffic tests; [T8 landing mat]		

DD FORM 1 NOV 55 473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE REVISED METHOD OF THICKNESS DESIGN FOR FLEXIBLE HIGHWAY PAVEMENTS AT MILITARY INSTALLATIONS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE August 1961		7a. TOTAL NO. OF PAGES 46	7b. NO. OF REFS 14
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-582	
8b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 270 581	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT The purpose of this study was to develop a method of design by which the effects of variation in load and repetitions of loading can be combined in such a manner that a single set of CBR thickness design curves will permit design of flexible highway pavements subject to traffic of any combination of standard vehicles. Exact incorporation of all variations of the various parameters involved would result in a method of such complexity as hardly to justify the resulting degree of accuracy; therefore, simplifying assumptions have been made which handle these variables without unduly affecting the accuracy of the final result. The report describes the development of the design method and gives detailed explanations of the assumptions used. Frost conditions or other conditions requiring special treatment are not a part of this study. KEYWORDS: Flexible pavement design (Highways); Military bases; Pavement thickness			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
A LIMITED STUDY OF EFFECTS OF MIXED TRAFFIC ON FLEXIBLE PAVEMENTS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1962		51	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		Technical Report No. 3-587	
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 275 972	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>Traffic was applied to a flexible pavement test section, consisting of a well-graded limestone base course constructed on a weak clay subgrade, with 10,000-, 25,000-, and 50,000-lb single-wheel-load test carts to study the effects of mixed traffic on flexible pavements not subject to frost conditions or other conditions requiring special consideration. Deflection, deformation, density, and CBR were measured at specified intervals of test traffic.</p>			
KEYWORDS: Flexible pavement performance and evaluation (Highways); Traffic tests			

DD FORM 1473

NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
BEACH STABILIZATION TESTS OF LANDING MATS AND PREFABRICATED MEMBRANES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1962	82	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. 8-70-01-400 and related Subprojects 8-70-03-420 and 8-70-03-440	Technical Report No. 3-592	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned to the report)	
d.	AD 401 508	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>The test program described in this report was conducted to obtain factual information for use in evaluating the relative effectiveness of several standard and experimental metal mats and prefabricated membranes in stabilizing unprepared beach sites subject to the action of waves and tides, and thus increase the trafficability potential of beaches for use in emergency offshore discharge operations. Past experience has proved that, for the loads involved, these mats and membranes will perform satisfactorily on dry areas or on areas not affected directly by the fluctuation (rise and fall) of water.</p>		
KEYWORDS: Beach trafficability; Metal landing mats; Prefabricated membranes		

DD FORM 1473
NOV 61

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
PAVEMENT MIX DESIGN STUDY FOR VERY HEAVY GEAR LOADS; PILOT TEST SECTION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1962	116	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report No. 3-594	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 687 370	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>This report describes the design, construction, and testing of the pilot test section, presents conclusions derived therefrom, and makes recommendations for the design of paving mixtures for use in pavements subjected to B-52 traffic.</p>		
KEYWORDS: Asphalt mix design; Flexible pavement design (Airfields)		

DD FORM 1473
NOV 61

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
DEVELOPMENT OF THE GYRATORY TESTING MACHINE AND PROCEDURES FOR TESTING BITUMINOUS PAVING MIXTURES			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
February 1962		66	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER (S)	
A. PROJECT NO.		Technical Report No. 3-595	
c.		8d. OTHER REPORT NUMBER(S) (Any other numbers that may be assigned this report)	
d.		AD 280 912	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Office, Chief of Engineers Washington, D. C. 20314	
13. ABSTRACT			
<p>In an effort to develop improved procedures for the design and control of hot-mix bituminous pavements the Waterways Experiment Station developed the gyratory testing machine, a laboratory compaction and testing device believed capable of: (a) producing the high densities that develop under channelized traffic of heavy wheel loads; (b) producing specimens with stress-strain characteristics similar to those of actual pavement samples of equal density and bitumen content; (c) predicting the number of load applications a paving mixture can withstand before failure; (d) predicting the design bitumen content independently of voids criteria; and (e) providing a more positive and faster plant-control test. Extensive laboratory and field tests proved the principle of the gyratory testing machine to be sound and its predictions to be more accurate than those of other previously established test methods. Tentative gyratory procedures for determining the design bitumen content of airfield pavements were established that are considered ready for trial. It is recommended that further studies be conducted to develop the many possible applications of the gyratory testing machine.</p>			
KEYWORDS: Asphalt mix design; Gyratory testing machines			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
TOTAL THICKNESS AND COMPACTION REQUIREMENTS FOR FLEXIBLE PAVEMENTS TO BE SUBJECTED TO CHANNELIZED TRAFFIC		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1962	47	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report No. 3-610	
b. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 296 042	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Air Force Washington, D. C. 20314
13. ABSTRACT		
<p>In 1955, pavement distress at certain air bases caused by channelized traffic of heavy (B-47) aircraft prompted modifications to the existing design criteria for flexible pavements, including increases in: total thickness above subgrade, subgrade compaction requirements, and base course thickness. In order to validate the revised criteria, a program of laboratory and traffic tests was initiated. A test section was designed, constructed, and tested to determine whether the increase in total thickness and the increase in subgrade compaction requirements for cohesionless materials were needed.</p>		
<p>KEYWORDS: Compaction requirements; Channelized traffic tests; Flexible pavement design (Airfields); Laboratory tests; Pavement thickness</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
AIRCRAFT OPERATIONS ON UNSURFACED SOIL, SOIL MEASUREMENTS AND ANALYSES PROJECT ROUGH ROAD ALPHA			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1963		29	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
9. PROJECT NO.		Technical Report No. 3-624	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 410 099	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Aeronautical Systems Division (ASD) Wright-Patterson Air Force Base, Ohio	
13. ABSTRACT			
<p>Project Rough Road Alpha was conducted during the period 23 August through November 1962 to determine minimum takeoff and landing performance requirements on representative soft natural-ground surfaces for C-130B, JC-130B, MC-130B, C-123B, and YC-123H aircraft. Two test locations were chosen: a sand area at the Marine Corps Air Station, Yuma, Arizona, and a clay area at Harper Lake, California, near Edwards Air Force Base. Descriptions of the test sites, aircraft tested, soils data obtained, and soil behavior during aircraft operations are included herein.</p>			
KEYWORDS: Unsurfaced runway performance and evaluation; [Marine Corps Air Station, Yuma Airzona; Harper Lake, California]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

M.E.P.

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ENVIRONMENTAL FACTORS AFFECTING GROUND MOBILITY IN THAILAND, PRELIMINARY SURVEY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report consisting of a main volume and eight Appendices (A-H) in separate volumes.		
5. AUTHOR(S) (First name, middle initial, last name) Rula, A. A. Harden, H. W. Grapau, W. E. Ansted, G. W. Orvedal, A. C. Czako, T. F.		
6. REPORT DATE May 1963	7a. TOTAL NO. OF PAGES 133	7b. NO. OF REFS 64
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 5-625, Main vol. & Appendices A-H	
9. PROJECT NO. c. ARPA Order No. 351-62 d.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 411 528 (Vol); AD 411 530 (App A); AD 411 533 (App B); AD 411 534 (App C); AD 411 531 (App D); AD 411 529 (App E); AD 413 984 (App F); AD 411 532 (App G); AD 411 535 (App H)	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Advanced Research Projects Agency Washington, D. C. 20315
13. ABSTRACT The study reported herein was a preliminary investigation made to provide guidance for a planned, longer range research program to develop and apply new and existing methods for measuring and predicting in quantitative and semiquantitative terms the effects of environmental factors on ground vehicles operating in Southeast Asia. The report is concerned specifically with the results of a field program conducted in Thailand. It presents a summary of the state of the art of measuring and predicting the effects of environmental factors on ground mobility, describes the environmental factors that affect ground mobility, presents the factor family concept and data adapted to ground-mobility purposes, and categorizes in tabular form environmental data by landscape types and subunits that occur in Thailand. Estimates of the probable effects of terrain factors on the performance of highly mobile vehicles are made for each landscape subunit. The report also presents conclusions and recommendations derived from an evaluation of the investigation. Eight appendices (A-H) were also published (in separate volumes) in conjunction with this report. Appendix A describes the results of a survey of unclassified existing data and literature. Appendices B, C, D, E, F, and G present methods of measurement and data tabulations and graphic presentations relative to the specific terrain factor with which each is concerned, i.e. soil classification, soil trafficability, vegetation, surface geometry, hydrologic geometry, and weather and climate, respectively. Appendix H presents an evaluation of the roads over which the preliminary survey test team traveled during the field data collection. KEYWORDS: Environmental analysis; Environmental factors; Off-road mobility; Road tests (Vehicles); State-of-the-art studies; Terrain classification; Tropical regions; [Thailand]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2c. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
3. REPORT TITLE		2b. GROUP	
ENGINEERING TESTS OF EXPERIMENTAL T11 ALUMINUM AIRPLANE LANDING MAT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1963		111	
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 8-70-03-440		Technical Report No. 3-634	
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AD 450 622	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		U. S. Army Materiel Command Washington, D. C. 20314	
13. ABSTRACT			
<p>The present standard aluminum landing mat (0.160-in.-thick M9) is a pierced-type air-field surfacing and thus provides little protection to the underlying subgrade from rain or jet aircraft blasts. As a possible replacement for the M9 mat, the Waterways Experiment Station designed an extruded aluminum mat (T11) incorporating improved dustproofing, waterproofing, and structural characteristics. Although these improvements could be provided by modifying the M9 mat to incorporate features similar to those of the T10 steel mat (modified M8), an extruded design, designated T11, was selected because of the outstanding performance of the extruded T8 magnesium mat and because a more efficient design can usually be developed with the extrusion process.</p>			
KEYWORDS: Aluminum landing mats; [T11 landing mat]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ENGINEERING TESTS OF EXPERIMENTAL T11 ALUMINUM AIRPLANE LANDING MAT APPENDIX B: DEVELOPMENT OF REVISED DESIGN CRITERIA FOR T11 LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Appendix B to main report.		
5. AUTHOR(S) (Last name, first name, initial) Brown, Donald N.		
6. REPORT DATE February 1966	7a. TOTAL NO. OF PAGES 21	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-634, App. B	
b. PROJECT NO. 1-V-O-21701-A-046, Task 05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 630 599	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT Experience with landing mat has led to increased confidence through accumulated knowledge of its performance. This in turn indicated a need to relax the early-adopted policy of very conservatively rating the subgrade strength of test sections used in determining mat performance. This report documents the revised policy and presents revised T11 landing mat design criteria developed from recent data and those in the basic report. The specific design curves presented herein for airfields surfaced with T11 mat (plates 1-7) should be considered in lieu of those in the basic report which were prepared on the more conservative philosophy of test analysis.		
KEYWORDS: Aluminum landing mats; [T11 landing mat]		

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE LABORATORY AND FIELD STUDY OF EPOXY-ASPHALT CONCRETE			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE January 1964		7a. TOTAL NO. OF PAGES 110	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-638	
8c. PROJECT NO.		8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
8e.		AD 434 896	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
13. ABSTRACT <p>The primary objective of this study was to develop a laboratory test procedure for selecting optimum binder content for epoxy-asphalt concrete mixtures. Other objectives of the study were to: (a) determine the effect of binder content on fuel and blast resistance; (b) compare the performance of epoxy-asphalt concrete constructed with type 1 binder material and that constructed with type 2 binder; and (c) compare the effectiveness of an epoxy-asphalt binder tack coat with the effectiveness of a conventional asphalt tack coat. This report presents the results of the laboratory tests, and describes the construction and evaluation of the overlay test section containing both the type 1 and type 2 epoxy-asphalt binders.</p>			
KEYWORDS: Epoxies; Epoxy-asphalt concrete; Field tests; Flexible pavements; Laboratory tests			

DD FORM 1473
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE HELICOPTER DOWNWASH BLAST EFFECTS STUDY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (Last name, first name, initial) Leese, G. W.		
6. REPORT DATE October 1964	7a. TOTAL NO. OF PAGES 48	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-664	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 452 177	
c.		
d.		
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Transportation Research Command Mobility Command, AMC Ft. Eustis, Virginia
13. ABSTRACT Field tests were conducted with operational helicopters at Fort Rucker, Ala., and at the Waterways Experiment Station to determine downwash velocity profiles. In addition, tests utilizing scale-model rotor blades were made at the WES over wet and dry sands and a dry lean clay, and over a chemically stabilized soil, plastic-impregnated soils, and lightweight ground covers (membranes) to determine model-scale velocity profiles and air velocities at the ground surface required to dislodge and move particles of various types of soil, the size of soil area requiring protection for various VTOL aircraft, and the effectiveness of membranes and soil stabilization in preventing dust-cloud formation. It was concluded that (a) the downwash velocities along the ground surface cause soil-particle pickup, and dust hazard conditions will develop if these velocities exceed 1200 fpm over fine dry sand and 1800 fpm over dust-size particles of lean clay; (b) lightweight ground covers can alleviate dust in the landing and takeoff area of helicopters, and a vertical lip around the edge of the membrane will reduce the size of membrane section needed; (c) certain soil stabilizers tested will alleviate dust formation under rotary-wing aircraft; and (d) there is need for more accurate measurement of prototype data for each aircraft in order to analyze completely the various parameters involved in scaling and to establish those of paramount importance so that small-scale tests can be used to predict downwash blast effects of full-scale aircraft. KEYWORDS: Blast effects; Dust control; Helicopter landing pads; Membranes (Airfields); Soil stabilization		

DD FORM 1 JAN 64 1473

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ANCHOR SYSTEM FOR PREFABRICATED MEMBRANE SURFACING FOR ARMY HELICOPTER LANDING PADS; ENGINEERING TESTS, MAY 1964		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 1 of series		
5. AUTHOR(S) (Last name, first name, initial) Tucker, Sidney G.		
6. REPORT DATE May 1965	7a. TOTAL NO. OF PAGES 74	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-675, Report 1	
b. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 616 249	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT Tests were conducted to evaluate the performance of a neoprene-coated nylon membrane placed as a dustproofing surface and held in place by improvised anchor systems. The membrane was tested in the laboratory to determine its weight, tensile and tear strengths, elongation, permeability, and resistance to weathering, flame, heat, cold, and fuel spillage. In the field, the membrane was anchored by both flat-plate and arrowhead anchors and on both in-place and constructed subgrades. The surfacing secured with flat-plate anchors was subjected to operations of a CH-21C helicopter. The tests indicated that: (a) the membrane anchored on a silt subgrade with 185 flat-plate anchors provided satisfactory operating conditions for the CH-21C helicopter, (b) the time required for 12 men to place the membrane with 185 flat-plate anchors was 50 to 60 minutes, (c) the time required for 8 men to place the membrane with arrowhead anchors was 40 to 50 minutes, (d) the arrowhead anchors had greater holding strength in all subgrades tested than the flat-plate anchors, and had adequate holding strength in both silt and sand subgrades, (e) flat-plate anchors had adequate holding strength in the silt subgrade but not in the sand. KEYWORDS: Anchors (Fasteners); Helicopter landing pads; Landing mats; Prefabricated membranes		

DD FORM 1 JAN 64 1473

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE Engineering Tests of T13 Plastic Airplane Landing Mat		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (Last name, first name, initial) Turner, Robert		
6. REPORT DATE June 1965	7a. TOTAL NO. OF PAGES 51	7b. NO. OF REFS None
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-677	
b. PROJECT NO. 1-V-0-21701-A-046		
c. Task No. 05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 620 041	
d.		
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Research and Development Directorate U. S. Army Materiel Command
13. ABSTRACT This report describes results of an investigation conducted to evaluate an experimental, commercially fabricated, plastic landing mat designated the T13. It is a sandwich structure made of glass-fabric-reinforced phenolic resin honeycomb core bonded top and bottom to glass-fabric-reinforced epoxy resin facings. The investigation consisted of laboratory tests to determine the structural properties of the mat and engineering traffic tests to obtain information for use in comparing the performance of the T13 plastic mat with that of the 10-gage M8 steel mat and with project requirements. The tests revealed a major deficiency in the strength of the adhesive bond between the extruded aluminum connectors and the facings of the T13 mat. Other structural properties of the mat, such as tensile, compressive, and flexural strengths of the facings and panels, were close to the desired values considered necessary to meet project requirements. The adhesive bond connection between connectors and facings was supplemented by a riveted type of connection. The T13 mat then sustained 350 coverages of a 50,000-lb single-wheel load and 200-psi tire pressure on a 14-CBR subgrade. In view of the more severe operational requirements for present-day airfield surfacing, it is recommended that consideration be given to new plastic landing mat designs as well as to possible modifications of the T13 mat design to determine the feasibility of proceeding with further engineering tests of plastic landing mats. KEYWORDS: Plastic landing mats; [T13 landing mat]		

DD FORM 1 JAN 64 1473

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Miss.		Unclassified
		2b. GROUP
3. REPORT TITLE		
OPERATIONAL TEST OF MODIFIED T11 ALUMINUM LANDING MAT, ENGLAND AFB, LOUISIANA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (Last name, first name, initial)		
Burns, Cecil D. Carr, Gordon L.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1965	106	2
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. IVO-21701-A-046		Technical Report No. 3-679
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 620 031
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command
13. ABSTRACT		
<p>This test was conducted to assess the capability of experimental, modified, T11 extruded-aluminum landing mat as expedient airfield surfacing for use by fighter and cargo aircraft. The mat was placed on a clayey-silt subgrade rated at 4 to 7 CBR in a runway complex 72 ft wide and 1000 ft long with parallel and connecting taxiways 48 ft wide. The system was then subjected to various operations of fighter and cargo aircraft types C-130E, C-123B, F-100, and F-4C. The mat was found suitable for the operation of cargo aircraft and for taxiing of fighter aircraft, but special and careful treatment of drainage, anchorage, and transitions at intersections was found necessary.</p>		
<p>KEYWORDS: Aluminum landing mats; [England Air Force Base, Louisiana; T11 landing mat]</p>		

DD FORM 1 JAN 64 1473

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		1a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		1b. GROUP
2. REPORT TITLE		
IMPROVED BEACH MATTING FOR U. S. NAVY AMPHIBIOUS OPERATIONS, ENGINEER TESTS, JANUARY-AUGUST 1964		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
Tucker, S. G.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1965	99	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.	Technical Report No. 3-680	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 620 138	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Department of the Navy Bureau of Yards and Docks Washington, D. C. 20314
13. ABSTRACT		
<p>The objective of the investigation reported herein was to evaluate and compare the performance of the two nettings tested at Onslow Beach with that of the woven wire beach mat presently used in amphibious landing operations by the Marine Corps when placed on a sloped loose-sand subgrade and subjected to mixed vehicle traffic (including trailers) with heavy loads and high tire-inflation pressures. It was recognized that the use of anchors along the sides and ends of the surfacing materials would improve their performance, but it was requested by the Navy that all anchorage be omitted from these tests in order that a minimum construction time and effort could be achieved.</p>		
KEYWORDS: Amphibious operations; Beach trafficability; Landing mats		

DD FORM 1473

NOV 65 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE PORTABLE SURFACING FOR U. S. ARMY HELICOPTER LANDING PADS; ENGINEERING FIELD TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (Last name, first name, initial) Tucker, Sidney G.		
6. REPORT DATE August 1965	7a. TOTAL NO OF PAGES 56	7b. NO OF REFS
8a. CONTRACT OR GRANT NO. b. PROJECT NO. 1-V-O-21701-A-046 c. Task No. 05 d.	9a. ORIGINATOR'S REPORT NUMBER(S) TR 3-686 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 621 685	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command
13. ABSTRACT This investigation was conducted to evaluate the performance of sewn membrane panels as a dustproof and waterproof cover for soil subgrades and as a material for rapid construction of helicopter landing pads in theaters of operations. Eight sewn panels of T1 No. 8 vinyl-coated cotton duck membrane were placed as a 100-ft-square surfacing directly on the soil subgrade and exposed to helicopter traffic for eight months. The panels were joined in the field by a series of adhesive lap joints. Results of the tests indicated that the panels provided a dustproof and waterproof surface for the soil subgrade while subjected to helicopter traffic. Both sewn and adhesive joints held satisfactorily throughout the testing. Locked-wheel turns and braking action of helicopter wheels scuffed the surfacing but produced no failures. The membrane was adequate for preventing dust clouds during operations of most conventional Army helicopters. Membrane panels were placed at a rate of 1126 sq ft per man-hour. It is recommended that tests be conducted on membrane surfacing that is stronger than the T1, that the surfacing be prejoined at the factory as a complete unit capable of being transported by fixed-wing and rotary-wing aircraft, and that some medium other than adhesive be used for joining the panels. KEYWORDS: Dust control; Helicopter landing pads; Prefabricated membranes; Waterproofing; [T1 membrane]		

DD FORM 1473
1 JAN 64

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
PORTABLE SURFACING FOR U. S. ARMY PIONEER-TYPE RUNWAYS, LABORATORY AND ENGINEERING FIELD TESTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (Last name, first name, initial)		
Tucker, Sidney G.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1965	89	1
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 1-V-O-21701-A-046	Technical Report No. 3-700	
c. Task 05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 626 150	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>Laboratory and field tests were conducted on sewn panels of T1, No. 8 cotton duck, vinyl-coated membrane, fasteners, and adhesive joints to determine their performance and suitability when the membrane was placed directly on soil subgrades and used as a waterproof and dustproof surface on pioneer-type runways for operations of U. S. Army fixed-wing aircraft. In laboratory tests, the weight, tensile and tearing strengths, elongation, permeability, weathering of membrane, and resistance to flame, heat, cold, and fuel spillage were determined. Field tests consisted of exposing the sewn membrane panels connected with both fastener and adhesive joints to traffic of fixed-wing aircraft. The tests indicated that the membrane will provide a dustproof and waterproof runway surfacing for operations of the O-1 Bird Dog, U-6 Beaver, and U-1A Otter with minor maintenance. Operations of the OV-1 Mohawk and CV-2 Caribou cause frequent damage to the surfacing, and daily maintenance is required. After approximately 2-1/2 years exposure to the weather, the tensile and tear strengths of the membrane had decreased about 34 and 63 percent, respectively.</p>		
KEYWORDS: Dust control; Prefabricated membranes; Runways; Surfacing; Waterproofing; [T1 membrane]		

DD FORM 1 JAN 64 1473

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE EVALUATION OF APPLICABILITY OF AASHO ROAD TEST RESULTS TO CORPS OF ENGINEERS FLEXIBLE PAVEMENT DESIGN CRITERIA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (Last name, first name, initial) Vedros, P. J. Brown, D. N.		
6. REPORT DATE November 1966	7a. TOTAL NO. OF PAGES 42	7b. NO. OF REFS 13
8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-721 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 804 117L	
10. AVAILABILITY/LIMITATION NOTICES Distribution limited to U. S. Government agencies only; test and evaluation; 31 December 1971. Other requests for this document must be referred to Office, Chief of Engineers.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Department of the Army, Washington, D. C.	
13. ABSTRACT Various approaches were investigated in an effort to use the results of the AASHO Road Test completed in 1961 to validate or modify present Corps of Engineers (CE) flexible pavement design criteria. The AASHO Road Test results are not directly applicable for use in improving existing CE design criteria because sufficient data were not obtained during application of test traffic to determine material strength conditions, especially at failure. The present serviceability index method of evaluating pavement performance, developed by the AASHO Road Test staff, appears to have considerable merit in quantitatively assessing pavement condition. However, the specific variables for which objective measurements are taken for use in this method of evaluation are not those normally considered in pavement design. The various approaches followed in attempting to relate the pattern of behavior represented by the AASHO Road Test results to the pattern inherent in the CE design procedures are explained and comparisons are shown. Mathematical patterns seem to be strongly parallel, but the specific field measurements needed to draw a direct comparison are lacking. KEYWORDS: AASHO Road Test; Design standards; Flexible pavement design (Airfields)		

DD FORM 1473
JAN 64

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified	
		2b. GROUP	
3. REPORT TITLE			
Aircraft Ground-Flotation Investigation Part I Basic Report			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Technical Report			
5. AUTHOR(S) (First name, middle initial, last name)			
Donald M. Ladd Harry H. Ulery, Jr.			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1967		103	9
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177		Technical Report No. 3-737, Part I	
9. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410-A		AFFDL-TR-66-43, Part I; AD 821 088	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Air Force Flight Dynamics Laboratory Research and Technology Division Air Force Systems Command, WPAFB, Ohio	
13. ABSTRACT			
<p>The Flexible Pavement Branch, Soils Division, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss., has conducted a series of tests to establish aircraft ground-flotation criteria with special emphasis on developing criteria for the C-5A aircraft. This report presents an analysis of data collected as a result of traffic tests on unsurfaced soils and soils surfaced with M8 and T11 landing mat. Also presented are introductory and background information on the Waterways Experiment Station ground-flotation research program, a description of the test equipment, materials, procedures, and techniques used, and examples of use of the criteria.</p>			
<p>KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]</p>			

DD FORM 1 NOV 61 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 JAN 66

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE Aircraft Ground-Flotation Investigation Part III Data Report on Test Section 2		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial) Brabston, W. N. Rutledge, A. H. Hill, W. J., Jr.		
6. REPORT DATE April 1966	7a. TOTAL NO. OF PAGES 30	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. MIPR AS-4-177	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-737, Part III	
8b. PROJECT NO. 410A	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.	AFFDL-TR-66-43, Part III; AD 484 673	
d.		
10. AVAILABILITY/ LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 JAN 64

Security Classification

AD-A045 026

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG--ETC F/G 1/5
A BIBLIOGRAPHY WITH ABSTRACTS OF U. S. ARMY ENGINEER WATERWAYS --ETC(U)
AUG 77 M P MEYER, V DALE
PSTIAC-5-VOL-2-PT-2

UNCLASSIFIED

NL

4 of 5

AD
A045026



UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part V Data Report on Test Section 4		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1966	29	
8a. CONTRACT OR GRANT NO.	8a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part V	
a. PROJECT NO.	8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A		
c.	AFFDL-TR-66-43, Part V; AD 809 381	
d.		
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
<p>This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.</p> <p>KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]</p>		

DD FORM 1 JAN 64 1473

UNCLASSIFIED

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part VI Data Report on Test Section 5		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
AUGUST 1966	29	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part VI	
a. PROJECT NO.		
410A		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFFDL-TR-66-43, Part VI; AD 809 189	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
<p>This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.</p>		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED
Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		3. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part VII Data Report on Test Section 6		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1966	33	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS 4-177	Technical Report No. 3-737, Part VII	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A	AFFDL-TR-66-43, Part VII; AD 809 190	
c.		
d.		
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part VIII Data Report on Test Section 7		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W.J., Jr.		
5. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1966	23	
8a. CONTRACT OR GRANT NO.	8a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part VIII	
a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A		
c.	AFFDL-TR-66-43, Part VIII, AD 808 382	
d.		
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1 JAN 64 1473

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part IX Data Report on Test Section 8		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Rutledge, A. H. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	23	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part IX	
b. PROJECT NO.		
410A		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFFDL-TR-66-43, Part IX; AD 805 290	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part X Data Report on Test Section 9		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	27	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part X	
a. PROJECT NO.		
410A		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFFDL-TR-66-43, Part X; AD 805 295	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station	UNCLASSIFIED	
	2b. GROUP	
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XI Data Report on Test Section 10		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Brabston, W. N. Hill, W. J., Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	20	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XI	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A	AFFDL-TR-66-43, Part XI; AD 805 278	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
	Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio	
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1 JAN 64 1473

FORM

UNCLASSIFIED
Security Classification

Security Classification

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

DD FORM 1473
1 JAN 64

UNCLASSIFIED
Security Classification

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station	UNCLASSIFIED	
	2b. GROUP	
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XIII Data Report on Test Section 13		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Watkins, J. E. Hammitt, G. M., II		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
Sept 1966	27	
8a. CONTRACT OR GRANT NO.	8a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XIII	
8b. PROJECT NO.	8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AFFDL-TR-66-43, Part XIII, AD 809 193	
9. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
	Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio	
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5 Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED
Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XIV Data Report on Test Section 14		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Hammitt, G. M., II. Watkins, J. E.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	23	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XIV	
a. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A	AFFDL-TR-66-43, Part XIV; AD 805 296	
c.		
d.		
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
<p>This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.</p> <p>KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]</p>		

DD FORM 1473
1 JAN 64UNCLASSIFIED
Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XV Data Report on Test Section 14A		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Watkins, J. E. Hammit, G. M., II,		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	25	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XV	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
410A	AFFDL-TR-66-43, Part XV; AD 805 280	
c.		
d.		
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
<p>This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.</p> <p>KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]</p>		

DD FORM 1473

JAN 64

UNCLASSIFIED

Security Classification

Security Classification

(Security classification of title, body of abstract and indexing entries must be entered when the overall report is classified)

DD FORM 1 JAN 64 1473

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XVII Data Report on Test Section 16		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Watkins, J. E. Hammit, G. M. II		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	23	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XVII	
a. PROJECT NO.		
410A		
c.	8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFFDL-TR-66-43, Part XVII, AD 805 298	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1 JAN 64 1473

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XVIII Data Report on Test Section 17		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Hill, W. J., Jr. Watkins, J. E.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1966	18	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XVIII	
a. PROJECT NO.		
410A		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFFDL-TR-66-43, Part XVIII, AD 805 281	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

67413

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION	
U. S. Army Engineer Waterways Experiment Station	UNCLASSIFIED	
	2b. GROUP	
3. REPORT TITLE		
Aircraft Ground-Flotation Investigation Part XIX Data Report on Light-Load Traffic Tests		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Technical Report		
5. AUTHOR(S) (Last name, first name, initial)		
Rutledge, A. H. Hammit, G. M., II		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
	38	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
MIPR AS-4-177	Technical Report No. 3-737, Part XIX	
a. PROJECT NO.		
410A		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be associated with this report)	
d.	AFFDL-TR-66-43, Part XIX, AD 808 381	
10. AVAILABILITY/LIMITATION NOTICES		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
	Air Force Flight Dynamics Laboratory Research and Technology Division AF Systems Command, WPAFB, Ohio	
13. ABSTRACT		
This data report describes the results of work undertaken as part of an overall program to develop ground-flotation criteria for the C-5A aircraft.		
KEYWORDS: Aircraft; Ground flotation; Landing mats; Traffic tests; Unsurfaced runways; [C-5A Aircraft]		

DD FORM 1473
1 JAN 64

UNCLASSIFIED
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ENGINEERING TESTS OF T17 MEMBRANE USED AS ALL-WEATHER SURFACING FOR TWO-WAY MILITARY ROADS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (Last name, first name, initial) Tucker, Sidney G. Vollor, Timothy W.		
6. REPORT DATE April 1967	7a. TOTAL NO. OF PAGES 44	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-772	
b. PROJECT NO. 1-V-O-21701-A-046		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 812 809	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT This test was conducted to determine the performance of the T17 membrane (a 2-ply, neoprene-coated, nylon material) as an expedient surfacing for roadways. A test section 29 ft wide and 94 ft long was constructed on a 7 percent grade. A construction joint was placed in the membrane surfacing approximately 50 ft from the top of the test section. Three trucks and trailers (M151 truck with M100 trailer, M37 truck with M101 trailer, and M35 truck with M101 trailer) were used to apply the desired amount and types of traffic. A total of 1000 passes per lane was conducted on the test section without a resulting failure of the membrane surfacing. Vehicle operations on the dry membrane surface caused no noticeable wear of the surfacing. When the membrane was slippery and vehicle operators had to exercise caution, no vehicular control problems occurred as long as speed was controlled according to the condition of the surfacing. During wet conditions, slight wear of the membrane occurred because of slag particles under the spinning vehicle wheels and sliding of vehicle wheels during emergency stops. Although it was not used during these tests, a nonskid compound that is now supplied normally with the membrane surfacing should be used to permit emergency braking action and control of vehicles during wet weather. During the investigation, the T17 membrane performed well and is considered a satisfactory expedient surfacing for dustproofing and waterproofing two-way military roads. It is recommended that vehicles be stopped and started gradually on the surfacing to prolong its life. KEYWORDS: Membranes (Roads); Nylon fibers; Synthetic rubber; Traffic tests; [T17 membranes]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1 ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a REPORT SECURITY CLASSIFICATION Unclassified
		2b GROUP
3 REPORT TITLE LABORATORY AND ENGINEERING FIELD TESTS OF ELECTRONIC-WELDED MEMBRANE SURFACING (T15) FOR HELICOPTER LANDING PADS		
4 DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5 AUTHOR(S) (Last name, first name, initial) Trucker, Sidney G.		
6 REPORT DATE April 1967	7a TOTAL NO OF PAGES 61	7b NO OF REFS 3
8a CONTRACT OR GRANT NO. b PROJECT NO. 1-V-O-21701-A-046 c Task 05 d		9a ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-773 9b OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 813 587
10 AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11 SUPPLEMENTARY NOTES		12 SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13 ABSTRACT Laboratory tests were performed at the U. S. Army Engineer Waterways Experiment Station to determine the feasibility of using a lightweight, electronically welded, vinyl-nylon (T15) membrane as a surfacing for helipads. Electronic welding together of strips of membrane permitted fabrication of the entire surfacing for a helipad in one piece at the factory, thus greatly reducing construction time over that required to join membrane strips with adhesive in the field. Engineer field tests of the T15 membrane surfacing were conducted at Cairns Army Airfield, Ft. Rucker, Ala., during the period 6 September 1963-2 June 1964 to determine the operational suitability of the membrane when exposed to traffic of U. S. Army wheel- and skid-gear helicopters over a long period, and the rate at which it could be placed. During the tests, 3309 helicopter operations were performed on the T15 membrane-surfaced helipad. It was concluded from the field tests that (a) wheel-gear helicopters will not damage the surfacing, but skid-gear helicopters will puncture and cut the surfacing; (b) the waterproofing and dustproofing qualities of the surfacing can be maintained by repairing the membrane with patches and adhesives; (c) the surfacing can be placed rapidly by inexperienced personnel; and (d) a membrane surfacing should be developed that will be satisfactory under operations of skid-gear helicopters. The laboratory tests showed the strength and weight of the T15 membrane to compare favorably with that of other lightweight membranes, and the strength of the electronic-welded joint to be adequate. KEYWORDS: Fiber reinforced plastics; Helicopter landing pads; Membranes (Airfields); Prefabricated membranes; [Cairns Army Airfield, Ft. Rucker, Ala., T15 membranes]		

DD FORM 1 JAN 64 1473

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate Author)		20. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station, CE Vicksburg, Miss.		Unclassified
2. REPORT TITLE		20. GROUP
DRAINAGE CHARACTERISTICS OF BASE COURSE MATERIALS, LABORATORY INVESTIGATION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Eugene H. Nettles Charles C. Calhoun, Jr.		
6. REPORT DATE	70. TOTAL NO. OF PAGES	70. NO. OF REFS
July 1967	72	15
80. CONTRACT OR GRANT NO.		80. ORIGINATOR'S REPORT NUMBER(S)
A. PROJECT NO.		Technical Report No. 3-786
C.		80. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
D.		AD 655 505
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		11. DISTRIBUTION STATEMENT
		Office, Chief of Engineers U. S. Army Washington, D. C.
13. ABSTRACT		
<p>A laboratory investigation of the effects of high degrees of compaction on the drainage characteristics (i.e., permeability and effective porosity) of coarse-grained base course materials was made to provide data for improving subsurface drainage design criteria. The investigation included the development of constant-head permeability test procedures for determining the coefficient of permeability of coarse-grained materials. In developing the test procedures, the effects of the following factors on permeability test results were investigated: compaction method, specimen size, compaction water content, method of saturating specimen, hydraulic gradient, rearrangement of particles, and temperature of the permeating water. Specimens of four gradations of base course materials were tested at densities ranging between 90 and 110 percent of their respective CE-55 maximum dry densities (modified AASHTO). The results of the investigation indicated that the permeability of the three coarser grained materials varied with density and hydraulic gradient, except at the higher densities. The permeability of the fourth (finest) material varied with density but not with hydraulic gradient. Results of effective porosity tests indicated that the effective porosity of a material decreases with increase in density and with increase in percentage of fines. The results of the investigation indicated that when the materials containing 5 percent or more of material passing the No. 200 sieve are compacted to high densities, they generally will not meet established drainage criteria.</p> <p>KEYWORDS: Base courses; Design standards; Subsurface drainage</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
ENGINEERING TESTS OF T14 PLASTIC AIRPLANE LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Hugh L. Green		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1967	52	12
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 1-V-O-21701-A-046	Technical Report No. 3-800	
c. Task 05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 824 225	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>An investigation was conducted at the U. S. Army Engineer Waterways Experiment Station (WES) to evaluate a commercially fabricated, plastic mat designated as the T14. The mat is a sandwich-type structure fabricated from epoxy-impregnated, high-density, foam-filled, glass-reinforced core material and glass, filament-wound, glass-fiber facings impregnated with polyester resin. The panels have extruded aluminum side and end connectors secured to the panel edges by the filament winding process. Side connections between panels are made by hinging together male and female connectors. End connections are made with locking-type connectors that are secured by aluminum locking beams. The investigation consisted of both laboratory and engineering traffic tests to determine various properties of the mat in an overall evaluation for comparison with previously tested mats and with project requirements. The results of the laboratory tests indicated that the mat as fabricated failed to meet all technical design requirements of the technical specifications. However, since the mat represented a new design concept, it was traffic tested to complete the evaluation of the design and fabrication. During traffic tests, the T14 mat placed on a 4.2-CBR subgrade sustained a maximum of 12 coverages of a 25,000-lb single-wheel load with 250-psi tire pressure, thus failing to meet the service-life requirement of 200 coverages on a 4-CBR subgrade. From these tests, it was calculated that an 11.5-CBR subgrade would be required to support the mat for 200 coverages. In view of the more severe operational requirements for present-day airfield surfacing, it was concluded that a reevaluation of new plastic mat designs, fabrication techniques, and plastics technology should be made prior to procurement of any additional plastic landing mats for testing.</p> <p>KEYWORDS: Laboratory tests; Plastic landing mats; Traffic tests; [T14 landing mats]</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE EVALUATION OF T10 DUST-ALLEVIATION-TYPE STEEL LANDING MAT AS EXPEDIENT SURFACING FOR TACTICAL ASSAULT AIRFIELDS; ENGINEERING FIELD TESTS, 1961-1966			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report			
5. AUTHOR(S) (First name, middle initial, last name) Sidney G. Tucker			
6. REPORT DATE January 1968		7a. TOTAL NO. OF PAGES 75	7b. NO. OF REFS 3
8a. CONTRACT OR GRANT NO. a. PROJECT NO. 1-V-O-21701-A-046 c. Task 05		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. 3-812 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 826 466	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT Field tests were conducted at Indian Mound Landing Strip, Fort Campbell, Ky., as a coordinated effort between the U. S. Army Engineer Waterways Experiment Station and Headquarters, 326th Engineer Bn (ABN DIV) to evaluate the operational suitability of experimental T10 dust-alleviation-type steel landing mat as an expedient surfacing for tactical assault airfields. These tests were conducted to determine the suitability of the T10 mat when subjected to traffic of U. S. Air Force and Army aircraft during inclement weather for an extended period of time, and to determine the rate at which the mat could be placed by inexperienced troops. During tests, 1577 cycles of aircraft operations were conducted on the T10-surfaced runway. Field test results showed that: a. T10 mat can be placed by inexperienced troops at an average placement rate of 200 sq ft per man-hour. b. T10 mat is effective in alleviating dust and preventing erosion of the subgrade caused by the propeller wash of U. S. Air Force troop-cargo and U. S. Army fixed-wing aircraft. c. T10 mat does not cause unusual wear or damage to aircraft tires. d. During inclement weather, mud and water are pumped through joint openings in the mat by aircraft and vehicular traffic. e. Vegetation growing through joint openings in T10 mat does not reduce braking action; however, mud pumped onto the surface of the mat reduces braking action considerably. f. The performance of T10 mat is considered satisfactory for operations of the Air Force C-123 and U. S. Army fixed-wing aircraft. Based on limited operations of the Air Force C-130 on T10 mat, it is believed that the mat is capable of supporting operations of this aircraft without excessive mat damage. It is recommended that (a) landing mats developed in the future incorporate dustproofing and waterproofing capabilities; (b) waterproofing mediums that can be placed over soil subgrades prior to placement of landing mats be considered as interim solutions for providing all-weather capabilities for runways surfaced with landing mat; and (c) a nonskid coating for the T10 mat that will provide adequate braking action during inclement weather be developed.			
KEYWORDS: Dust control; Steel landing mats; Traffic tests; [Fort Campbell, Ky.; T10 landing mats]			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
ENGINEERING TESTS OF MODIFIED T12 PLASTIC AIRPLANE LANDING MAT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Hugh L. Green		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April 1968	64	11
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1-V-0-21701-A-046, Task 05		Technical Report No. 3-820
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 832 940
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT This report describes an investigation conducted at the U. S. Army Engineer Waterways Experiment Station for the purpose of evaluating an experimental quantity of commercially fabricated plastic mat. The mat is a sandwich structure fabricated from glass-fabric-reinforced honeycomb core material bonded on top and bottom with epoxy adhesive to polyester-resin-impregnated, glass-fabric, laminated facings. Glass-fabric-reinforced tongue-and-groove side and end connectors are fabricated as integral parts of the panels. Laboratory and engineering traffic tests were conducted to determine various properties of the mat in an overall evaluation for comparison with the original T12 mat and with the project requirements. The service-life criteria under which the mat was tested required 200 coverages of a 25,000-lb single-wheel load with a tire-inflation pressure of 250 psi when placed on a subgrade with a California Bearing Ratio (CBR) of 4. This was more critical than the original criteria under which the T12 was tested, which specified 700 coverages of a 50,000-lb single-wheel load with tire-inflation pressures up to 200 psi when placed on a 15-CBR subgrade. It was concluded that a future plastic landing mat should incorporate improved features to reduce weight, provide a stronger means of connecting individual panels, and improve the core-to-facing bond. However, prior to the procurement of any additional plastic landing mats, it is recommended that a reevaluation of new plastic fabrication techniques and plastics technology be made. Engineering tests then should be conducted on an experimental quantity of an improved plastic mat.		
KEYWORDS: Laboratory tests; Plastic landing mats; Traffic tests; [T12 landing mats]		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
BRAKING TESTS ON NONSKID MATERIALS APPLIED TO T17 MEMBRANE SURFACING, NOVEMBER 1966-MARCH 1966		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Richard H. Grau Sidney G. Tucker		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1968	79	4
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report S-68-3	
9. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 837 658L	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; 31 December 1971. Other requests for this document must be referred to U. S. Army Materiel Command.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Research and Development Directorate U. S. Army Materiel Command Washington D. C.
13. ABSTRACT		
<p>Tests reported herein were conducted to determine skid resistance of T17 membrane surfacing and performance of nonskid materials applied to the surfacing. Tests were conducted on the nonskid-treated membrane to determine if it could be accordion-folded without removing the nonskid compound. Three compounds tested (Ferrox, 201 Fuller, and 301 Fuller) consisted of liquid binders and abrasive particles. Three other products tested (Safety Walk, Scotch Tred, and Slip-X Safety Tread) consisted of abrasive-treated flexible materials with pressure-sensitive adhesive backings. These materials were bonded to the membrane surfacing by placing the backings in contact with membrane and applying pressure. After the materials had been applied, they were tested by towing a locked-wheel cart across the treated surfacing. Laboratory tests were conducted on untreated and treated membrane to determine coefficients of friction and obtain a correlation between laboratory and load-cart methods of determining these coefficients. Test results indicated the following: <u>a.</u> Dry untreated surfacing produced skid resistance adequate to restrain aircraft during maximum engine runups, but wet untreated surfacing did not. <u>b.</u> Ferrox nonskid compound was difficult to mix thoroughly; the 201 and 301 Fuller compounds were relatively easy to mix. <u>c.</u> Large amounts of Ferrox compound were removed from the surfacing during skid tests, but small amounts of Fuller compounds were removed. <u>d.</u> The backings of abrasive-treated flexible materials could not withstand locked-wheel braking action of aircraft. <u>e.</u> Fuller compounds increased skid resistance of the membrane and provided adequate braking surfacing for aircraft. <u>f.</u> No satisfactory correlation was obtained between the load-cart method and any laboratory method of determining skid resistance. <u>g.</u> The membrane surfacing can be treated with nonskid compound, accordion-folded, and placed in a wood crate without removing excessive amounts of nonskid compound. <u>h.</u> Tire wear resulting from skid tests on 301 Fuller and diluted 201 Fuller Compounds was negligible.</p>		
KEYWORDS: Braking (Arresting motion); Membranes (Airfields); Nonskid compounds; Skid resistance; Traffic tests; [T17 membranes]		

DD FORM 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		29. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		Unclassified
3. REPORT TITLE		20. GROUP
GYRATORY COMPACTION OF SOIL: Report 1. PIT-RUN CLAY GRAVEL, DATA REPORT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Report 1 of a series		
5. AUTHOR(S) (First name, middle initial, last name)		
William F. Abbott, Jr.		
6. REPORT DATE	70. TOTAL NO. OF PAGES	71. NO. OF REFS
September 1968	41	7
82. CONTRACT OR GRANT NO.	92. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report S-68-6	
9. PROJECT NO.	Report 1	
10. DISTRIBUTION STATEMENT	93. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
Approved for public release; distribution unlimited.	AD 679 165	
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers, U. S. Army Washington, D. C.
13. ABSTRACT		
<p>Tests were performed to determine the effect of the gyratory compactor's three variables (angle of gyration, vertical pressure, and number of revolutions) on compaction characteristics of pit-run clay gravel. Gyratory moisture-density relations were determined by maintaining two of the three variables constant while the third was allowed to vary through a predetermined range. This procedure was repeated for each variable. Other information obtained from the tests included sample rebound after gyration, California Bearing Ratios indicating comparative soil strength, static-pressure compaction, reproducibility of gyratory compaction results, and amount of aggregate degradation. The clay gravel was also compacted by the impact method for comparison with the gyratory compaction results. The gyratory compactor produced moisture-density relations similar to those of the impact method. However, comparison of the gyratory moisture-density curves with the impact curves showed that greater densities at lower water content could be produced by the gyrator. Examination of the gyratory data indicated that increasing vertical pressure produced greater increases in density than increasing either the angle of gyration or number of revolutions. When the vertical pressure was released from the sample, only a small rebound occurred. Tests of the aggregate before and after gyratory compaction showed only a minimum of aggregate degradation. The data from gyratory compacted samples demonstrated excellent reproducibility of compaction characteristics. Reproducibility of CBR test results, however, was inconclusive because of the aggregate effect on piston penetration. These data are to be used later in exploring the use of the gyratory compactor in the design of pavement structures.</p> <p>KEYWORDS: Gravels; Gyratory compaction tests; Gyratory testing machines; Impact compaction</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate Author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
GYRATORY COMPACTION OF SOIL; Report 2, LEAN CLAY, DATA REPORT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Report 2 of a series		
5. AUTHOR(S) (First name, middle initial, last name)		
Loren M. Womack James F. Sirr Steve L. Webster		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1969	54	7
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
	Technical Report S-68-6, Report 2	
9. PROJECT NO.	9b. OTHER REPORT NUMBER(S) (A. For other numbers that may be assigned this report)	
	AD 701 191	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT		
<p>Tests were performed to determine the effect of the three gyratory compactor variables (angle of gyration, vertical pressure, and number of revolutions) on the compaction characteristics of lean clay. Moisture-density relations were determined by maintaining two of the three variables constant while the third was allowed to vary through a predetermined range. This procedure was repeated for each of the three variables. Other information obtained during the test program included California Bearing Ratios indicating comparative soil strength and unconfined compressive strength data. The lean clay was also compacted by the impact compaction method for comparison with the gyratory compaction results. The gyratory compactor produced moisture-density relations similar to those resulting from compaction by the impact method. However, when the gyratory moisture-density curves were compared with the impact curves, it was apparent that greater densities at a lower water content could be produced by the gyrator. An examination of the gyratory data indicated that increasing vertical pressure produced greater increases in density than increasing either of the other two variables, angle of gyration or number of revolutions. When the vertical pressure was released from the sample, only a small rebound was observed. The data from the gyratory-compacted samples demonstrated excellent reproducibility of compaction characteristics, CBR, and unconfined compressive strength. These data are to be used as a part of a later analysis exploring the use of the gyratory compactor in the design of pavement structures for present and future traffic.</p>		
KEYWORDS: Clays; Gyratory compaction tests; Gyratory testing machines; Impact compaction		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		20. REPORT SECURITY CLASSIFICATION Unclassified 20. GROUP
3. REPORT TITLE GYRATORY COMPACTION OF SOIL; Report 3, CRUSHED LIMESTONE, DATA REPORT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 3 of a series		
5. AUTHOR(S) (First name, middle initial, last name) William B. Fenwick		
6. REPORT DATE May 1969	7a. TOTAL NO. OF PAGES 31	7b. NO. OF REFS 8
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-68-6, Report 3	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.	AD 689 454	
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers, U. S. Army Washington, D. C.
13. ABSTRACT Tests were performed to determine the effect of the gyratory compactor's three variables (angle of gyration, vertical pressure, and number of revolutions) on the compaction characteristics of crushed limestone. Gyratory moisture-density relations were determined by maintaining two of the three variables constant while the third was allowed to vary through a predetermined range. This procedure was repeated for each of the three variables. Other information obtained during the test program included upper roller pressures (an indication of shear strength), sample rebound after gyration, California Bearing Ratios indicating comparative soil strength, reproducibility of gyratory compaction results, and degradation of aggregate during gyratory compaction. The crushed limestone was also compacted by the impact compaction method for comparison with the gyratory compaction results. The gyratory compactor produced moisture-density relations similar to those resulting from compaction by the impact compaction method. However, when the gyratory moisture-density curves were compared with the impact compaction curves, it was apparent that greater densities at a lower water content could be produced by the gyrator. An examination of the gyratory data indicated that increasing vertical pressure produced greater increases in density than increasing either of the other two variables, i.e. angle of gyration or number of revolutions. When the vertical pressure was released from the sample, only a small rebound was observed. Tests of the aggregate before and after gyratory compaction showed that a minimum of aggregate degradation occurred. These data are to be used as a part of a later analysis exploring the use of the gyratory compactor in the design of pavement structures for present and future traffic. KEYWORDS: Crushed stone; Gyratory compaction tests; Gyratory testing machines; Impact compaction; Limestone		

DD FORM 1473
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE THICKNESS REQUIREMENTS FOR UNSURFACED ROADS AND AIRFIELDS; Bare Base Support		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) George M. Hammitt II		
6. REPORT DATE July 1970	7a. TOTAL NO. OF PAGES 135	7b. NO. OF REFS 7
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-70-5	
b. PROJECT NO. 3782-65		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 713 897	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers U. S. Air Force Washington, D. C.
13. ABSTRACT The investigation reported herein is one phase of a research program being conducted to develop methods of determining thickness requirements for landing-mat-surfaced, membrane-surfaced, and unsurfaced airfields. This phase of the program pertains to developing a method for determining design thickness requirements for unsurfaced airfields. Tests were conducted on a total of 43 unsurfaced test items. These items had varying thicknesses and were trafficked under different loading conditions. CBR, water content, density, deflection, and deformation data were recorded throughout testing. Results of related work, previously reported, were incorporated in determining the effect of type of soil used in fulfilling thickness requirements. From these data, a method of design and a mathematical expression for thickness requirements were developed for use in unsurfaced airfield and unsurfaced road design and evaluation. The design expression relates thickness requirements to soil response in terms of applications of load, load magnitude and pressure, and strength of soil. An attempt was made to relate influence of tire size and stiffness to soil response, but limited data prevented identification of a conclusive relation.		
KEYWORDS: Bare base support; Base courses; Design standards; Pavement thickness; Unsurfaced airfields; Unsurfaced roads		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		Unclassified
		2b. GROUP
3. REPORT TITLE		
EVALUATION OF ANCHORS USED TO SECURE MEMBRANE SURFACINGS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Richard H. Grau		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1971	45	6
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1G664717D556		Technical Report S-71-10
c. Task 02		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 729 802
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>A review of two previously published reports concerning the evaluation of anchors was made to determine the feasibility of using any of the anchors tested to secure membrane surfacings. Tests reported herein were conducted to evaluate and compare the performances of various anchors driven into a lean clay subgrade. Holding strengths of the various anchors were determined in four types of soil subgrades. Performances of the anchors were compared with the performance of the guy anchor, which is a standard item. The literature review and test results indicated that the heads of the guy anchors were either broken from the reinforcing bars or bent when the anchors were driven to a depth of 24 in.; disk-type anchors were easily driven into the soil subgrade; two-legged, threaded guy, and threaded disk-type anchors were damaged when they were driven into the clay subgrade; arrowhead anchors had the greatest holding strengths; guy and arrowhead anchors developed adequate holding strengths in sand, silt, and fat and lean clay subgrades; disk-type and two-legged anchors produced adequate holding strengths in the silt, fat clay, and lean clay subgrades; anchors developed the greatest holding strengths when extracted at a 60-deg angle with the surfaces of the subgrades; anchors described in the literature review were not feasible for use in securing membrane surfacing. Based on the results of the tests reported herein, it is concluded that the disk-type anchors are satisfactory for securing membrane surfacing.</p>		
KEYWORDS: Anchors (Fasteners); Clays; Membranes		

DD FORM 1473 1 NOV 66 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		Unclassified
		2b. GROUP
3. REPORT TITLE		
COMPARISON OF PERFORMANCE OF EXPERIMENTAL MEMBRANES, NONSKID COMPOUNDS, ADHESIVES, AND EARTH ANCHORS WITH REGARD TO C-130 AIRCRAFT OPERATIONAL REQUIREMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Timothy W. Voller		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1971	183	3
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 17062103A046	Technical Report S-71-11	
c. Task 05	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AD 729 803	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>Laboratory and field tests were conducted at the U. S. Army Engineer Waterways Experiment Station (WES) to evaluate experimental membranes and materials that showed promise of improving the performance of membranes used to surface assault-type airfields for operations of C-130 aircraft. Eleven membranes were evaluated during this investigation. Because so much data are available at WES concerning T17 membrane, it was used as the base material for comparison purposes. WX18 membrane was used as the minimum standard material. The XM19 through XM27 experimental membranes were neoprene-coated nylon fabric membranes. The polypropylene 1 and 2 experimental membranes were asphalt-coated polypropylene fabric membranes. None of the 11 experimental membranes that were tested performed as well as the WX18 membrane. However, the results obtained can be used in conjunction with other membrane studies. Fourteen adhesives were submitted to the WES for evaluation. The adhesives submitted were one-part adhesives composed of a synthetic rubber resin dispersed in a solvent. The minimum requirements for evaluating the adhesives were the minimum values obtained from tests conducted with the G580-25 adhesive, which has been accepted previously for use with the T17 membrane. Nine of the adhesives tested proved equal to or better than the G580-25 adhesive. These nine adhesives were the G580-20, EC1711, EC880, 1139, EC2141, MG180, 472, 701, and 1142. Twelve commercial nonskid compounds were submitted to the WES for evaluation. These nonskid compounds were evaluated using simulated C-130 operations. Three of the compounds passed the requirements set forth in the laboratory and field tests. These three nonskid compounds were Fuller 201, Reliance 850-40-AH, and Palmer FM1812-M-1. Four anchor types, i.e., the guy, disk-type, two-legged, and arrowhead anchors, were evaluated to determine which would be the most suitable for use with membrane-surfaced assault airfields. The durability and holding strength of each anchor were evaluated. The disk-type anchor was found to be the most durable, and it developed adequate holding strengths in silt, lean clay, and heavy clay and provided a limited means of anchoring membrane in compacted sand subgrades. Therefore, the disk-type anchor was considered the most satisfactory for use with membrane-surfaced assault airfields.</p> <p>KEYWORDS: Adhesives; Anchors (Fasteners); Laboratory tests; Membranes; Nonskid compounds; Surfacing materials; Traffic tests; [C-130 aircraft]</p>		

DD FORM 1473 NOV 66 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi 39180		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE MULTIPLE-WHEEL HEAVY GEAR LOAD PAVEMENT TESTS: Volume I, Basic Report			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) 1 January 1968 through 1 August 1971			
5. AUTHOR(S) (First name, middle initial, last name) R. G. Ahlvin, et al.			
6. REPORT DATE November 1971		7a. TOTAL NO. OF PAGES 212	7b. NO. OF REFS 61
8a. CONTRACT OR GRANT NO. MIPR 68-7		8a. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-71-17, Vol. I	
b. PROJECT NO. 5224			
c.		8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		AFWL-TR-70-113, Vol. I; AD 889 705	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY AFWL (DEZ) Kirtland AFB, NM 87117	
13. ABSTRACT Flexible and rigid pavements were constructed and tested to obtain data on pavement and soil behavior under large aircraft loadings for use in developing criteria for evaluating and designing airfield pavements subjected to multiple-wheel heavy gear loads (WMHGL). The test sections incorporated instrumentation systems designed to determine the response of the pavement structures to static, dynamic (slowly moving), and vibratory loads and to traffic by full prototype loadings of a 12-wheel assembly (one main gear of a C-5A aircraft), a twin-tandem assembly (one twin-tandem component of the Boeing 747 assembly), and a single wheel. The data from the instrumentation program and the traffic tests were used in the analysis of the flexible and rigid pavement test sections. The analysis resulted in a modification of the basic flexible pavement CBR design method. The recommended method reflects a reduction of existing Corps of Engineers (CE) thickness requirements that is especially significant for multiple-wheel assemblies in the higher operational level. Current CE evaluation and design methods for rigid pavements are based on stress in the concrete pavement as calculated from the Westergaard analysis; extrapolations to the existing criteria were found to be valid for WMHGL assemblies insofar as pavement thicknesses were concerned. Rigid pavement testing indicated that current jointing recommendations allowing keyed construction joints may be unconservative for WMHGL assemblies trafficking a pavement overlying a low-strength subgrade. KEYWORDS: Accelerated traffic tests; Flexible pavements; Load tests (Pavements); Multiple wheel landing gear; Pavement performance and evaluation; Rigid pavements			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing association must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi 39181		UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE		
MULTIPLE-WHEEL HEAVY GEAR LOAD PAVEMENT TESTS: Volume II, Design, Construction and Behavior Under Traffic		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
1 January 1968 through 1 August 1971		
5. AUTHOR(S) (First name, middle initial, last name)		
Cecil D. Burns Ronald L. Hutchinson		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1971	270	9
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR 68-7	Technical Report S-71-17, Vol. II	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
5224	AFWL-TR-70-113, Vol. II; AD 889 889	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		AFWL (DEZ) Kirtland AFB, NM 87117
13. ABSTRACT		
<p>Flexible and rigid pavement test sections were constructed and trafficked to obtain data to validate present criteria or develop new criteria for the evaluation and design of airfield pavements subjected to multiple-wheel heavy gear loads. Traffic was applied to the test sections with different test carts: a 12-wheel assembly that represented one main gear of a C-5A aircraft, a 6-wheel bogie of the 12-wheel assembly, a twin-tandem assembly that duplicated one twin-tandem component of the Boeing 747 assembly, and a single wheel. This volume presents details of the design, construction, and behavior of the flexible and rigid pavements under traffic. Certain information from this volume was used in the development of design and evaluation criteria, which will be discussed in Volume IV of this report.</p>		
KEYWORDS: Flexible pavements; Load tests (Pavements); Multiple wheel landing gear; Pavement design; Pavement performance and evaluation; Rigid pavements; Traffic tests		

DD FORM 1 NOV 66 1473

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi 39181		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
2. REPORT TITLE MULTIPLE-WHEEL HEAVY GEAR LOAD PAVEMENT TESTS: Volume IIIA, Presentation and Initial Analysis of Stress-Strain Deflection and Vibratory Measurements - Instrumentation		2b. GROUP
3. DESCRIPTIVE NOTES (Type of report and inclusive dates) 1 January 1968 through 1 August 1971		
4. AUTHOR(S) (First name, middle initial, last name) Richard H. Ledbetter John L. Rice		
5. REPORT DATE November 1971	7a. TOTAL NO. OF PAGES 156	7b. NO. OF REFS 7
6a. CONTRACT OR GRANT NO. MIPR 68-7	8a. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-71-17, Vol. IIIA	
6. PROJECT NO 5224	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AFWL-TR-70-113, Vol. IIIA; AD 890 779	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY AFWL (DEZ) Kirtland AFB, NM 87117
13. ABSTRACT Flexible and rigid pavement test sections were constructed and tested to gain information on pavement and soil behavior under large aircraft loadings. These test sections incorporated instrumentation systems designed to determine the response of the pavement structures to static, dynamic (slowly moving), and vibratory loads and to traffic by full prototype loadings. The components of the instrumentation systems, their installation, and the test programs are described in this volume.		
KEYWORDS: Flexible pavements; Load tests (Pavements); Measuring instruments; Multiple wheel landing gear; Rigid pavements; Stress-strain relations		

DD FORM 1473

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi 39181		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE MULTIPLE-WHEEL HEAVY GEAR LOAD PAVEMENT TESTS: Volume IIIB, Presentation and Initial Analysis of Stress-Strain Deflection and Vibratory Measurements - Data and Analysis		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) 1 January 1968 through 1 August 1971		
5. AUTHOR(S) (First name, middle initial, last name) Richard H. Ledbetter John L. Rice		
6. REPORT DATE November 1971	7a. TOTAL NO. OF PAGES 542	7b. NO. OF REFS 6
8a. CONTRACT OR GRANT NO. MIPR 68-7	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-71-17, Vol. IIIB	
9. PROJECT NO. 5224	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AFWL-TR-70-113, Vol. IIIB, AD 890 780	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY AFWL (DEZ) Kirtland AFB, NM 87117
13. ABSTRACT Flexible and rigid pavement test sections were constructed and tested to gain information on pavement and soil behavior under large aircraft loadings. These test sections incorporated instrumentation systems designed to determine the response of the pavement structures to static, dynamic (slowly moving), and vibratory loads and to traffic by full prototype loadings. The components of the instrumentation systems, their installation, and the test programs are described in Volume IIIA. This volume covers data reduction, analysis, and the findings of the instrumentation and vibratory testing programs; Appendixes A and B contain details of instrumentation measurements for flexible and rigid pavements, respectively. Analysis of the maximum response data from the instrumentation program resulted in the following findings for the flexible pavement test section: (a) A load- and position-dependent moving zero reference level was identified for each deflection gage; (b) Limiting maximum elastic deflection and vertical elastic stress versus depth curves were established for static load test results. Analysis showed that the same relationships were true for static and dynamic load tests as well as for the speed tests; (c) The soft layer in item 4 caused different stress and deflection distributions from those in item 3. The major findings for the rigid pavement test section indicated that the Westergaard algorithm can be used for reasonable prediction of pavement response to single-wheel, twin-tandem, and 12-wheel-assembly loadings. KEYWORDS: Data reduction; Flexible pavements; Load tests (Pavements); Multiple wheel landing gear; Rigid pavements; Stress-strain relations; Traffic tests		

DD FORM 1 NOV 66 1473

UNCLASSIFIED

Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		28. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi 39181		UNCLASSIFIED
		29. GROUP
3. REPORT TITLE		
MULTIPLE-WHEEL HEAVY GEAR LOAD PAVEMENT TESTS: Volume IV, Analysis of Behavior Under Traffic		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
1 January 1968 through 1 August 1971		
5. AUTHOR(S) (First name, middle initial, last name)		
George M. Hammitt II Ronald L. Hutchinson John L. Rice		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1971	134	55
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
MIPR 68-7	Technical Report S-71-17, Vol. IV	
b. PROJECT NO. 5224		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	AFWL-TR-70-113, Vol. IV; AD 890 668	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		AFWL (DEZ) Kirtland AFB, NM 87117
13. ABSTRACT		
<p>Flexible and rigid pavement test sections were constructed and tested to obtain data to validate present criteria, to establish modifications to present criteria, or to develop new criteria for the evaluation and design of airfield pavements to be subjected to multiple-wheel heavy gear loads (MWHGL). The basic CBR design method was expanded and modified to obtain a method of design for flexible pavements subject to traffic by MWHGL. The recommended method reflects a reduction of existing U. S. Army Corps of Engineers (CE) thickness requirements that is especially significant for multiple-wheel assemblies in the higher operational level. Current CE evaluation and design methods for rigid pavements are based on stress in the concrete pavement as calculated from the Westergaard analysis; extrapolations to the existing criteria were found to be valid for MWHGL assemblies insofar as pavement thicknesses were concerned. Results of traffic testing of the rigid pavement indicate that current jointing recommendations allowing keyed construction joints may be unconservative when MWHGL assemblies will be trafficking a pavement resting on a low-strength subgrade.</p> <p>KEYWORDS: Flexible pavements; Load tests (Pavements); Measuring instruments; Multiple wheel landing gear; Rigid pavements; Stress-strain relations</p>		

DD FORM 1 NOV 65 1473

UNCLASSIFIED
Security Classification

Unclassified
Security Classification

P,E

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE DETERMINING PRESENCE, THICKNESS, AND ELECTRICAL PROPERTIES OF STRATIFIED MEDIA USING SWEEP-FREQUENCY RADAR		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) Jerry R. Lundien		
6. REPORT DATE November 1972	7a. TOTAL NO. OF PAGES 64	7b. NO. OF REFS 7
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report M-72-4	
b. PROJECT NO. 4A061102B52E-01 4A062112A854-02	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 752 509	
c.		
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers, U. S. Army Washington, D. C., and U. S. Army Engineer Topographic Laboratories, Ft. Belvoir, Va.
13. ABSTRACT The ability of a swept-frequency radar system operating under field conditions to detect the presence and measure the thickness of layered substrata and to determine the electrical properties of the materials in these substrata was studied. Reflectivity on sections of asphaltic concrete pavement structures (i.e. asphalt highway) of various subsurface layer thicknesses was measured by a specially designed microwave system operating over the frequency range of 0.25 to 8.0 GHz at perpendicular incidence. Test results indicated that swept-frequency radar measurements can be used to estimate power reflectance from the surface material of highway structures and to determine the amplitude of the subsurface contribution. Also, interference patterns, produced in the power reflectance curves, can be used to calculate the thickness of each layer of the structure.		
KEYWORDS: Flexible pavements; Layered systems; Microwaves; Pavement thickness measurement; Radar signals		

DD FORM 1 NOV 66 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
U. S. Army Engineer Waterways Experiment Station Vicksburg, Miss.		Unclassified
		2b. GROUP
3. REPORT TITLE		
EVALUATION OF REDESIGNED WX18 MEMBRANE AND ACCESSORIES		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Frank M. Palmer		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1973	122	10
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1G664717D556		Technical Report S-73-3
c. Task 02		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 761 089
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>Tests were conducted at the U. S. Army Engineer Waterways Experiment Station to determine the suitability of the redesigned WX18 membrane and accessories as expedient surfacing for waterproofing and dustproofing hastily prepared airfields for operations of C-130 aircraft. The objectives of the tests were as follows: to compare the redesigned WX18 membrane with the WX18 membrane, which was considered unsuitable as an expedient surfacing for C-130 operations as a result of integrated engineering and service tests conducted at Ft. Campbell, Kentucky, during 11 May to 15 November 1966, and to determine whether the WX18 membrane met the requirements of the Department of the Army approved Qualitative Material Requirement (QMR) for Prefabricated Airfield Surfacing. Laboratory tests conducted to determine the physical characteristics of the redesigned WX18 membrane indicated the surfacing was equal or superior in strength to the WX18 membrane. The tests also indicated that the surfacing met the QMR specifications with respect to weight, FCL resistance, and high- and low-temperature resistance. Skid tests conducted to simulate locked-wheel braking action of C-130 aircraft in touchdown areas of assault runways indicated that the redesigned WX18 membrane possessed the strength and abrasion resistance to withstand repetitive stresses of the magnitude produced by C-130 aircraft. However, the redesigned WX18 did not have the durability of the WX18 membrane in that fewer repetitive skids were required to produce failure of the surfacing. Skid tests were also conducted to determine if the nonskid compound as applied to the surfacing would produce sufficient skid resistance for all-weather operations of C-130 aircraft (i.e., according to the QMR, possess a Runway Condition Reading of 13-25). The tests indicated that the nonskid produced the minimum required coefficients of friction but lacked the necessary adhesion to withstand the abrasion of the test wheel. Placement and traffic tests were conducted on the surfacing to determine conformance with the QMR with respect to packaging, placement rate, suitability of accessories, service life, and maintainability. Two test areas were constructed in which the membrane was placed directly on a prepared soil subgrade and subjected to rolling traffic of a C-130 wheel. Test results indicated that the surfacing met the QMR specifications for placement rate and suitability of accessories but did not possess the required service life of six months of 1200 C-130 sorties. Furthermore, the redesigned WX18 membrane required excessive maintenance. Improved designs of this membrane will be directed toward the elimination of deficiencies indicated as a result of these tests. The improvements will be incorporated in the final design of the heavy-duty membrane airfield surfacing.</p>		
KEYWORDS: Dust control; Membranes (Airfields); Prefabricated membranes; Traffic tests; Waterproofing; [WX18 membranes]		

DD FORM 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

M.P

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE VEHICLE/ROAD COMPATIBILITY ANALYSIS AND MODIFICATION SYSTEMS (VRCAMS)		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) Victor C. Barber Newell R. Murphy		
6. REPORT DATE December 1973	7a. TOTAL NO. OF PAGES 163	7b. NO. OF REFS 35
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-73-13	
9. PROJECT NO. 4A062112A859		
c. Task 01	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 772 962	
d. Work Units 002 and 015		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Office, Chief of Engineers Washington, D. C. 20314
13. ABSTRACT The Vehicle/Road Compatibility Analysis and Modification System (VRCAMS) brings together appropriate disciplines pertinent to vehicles, mobility, road geometrics, structures and maintenance to determine and measure the compatibility of vehicle and its environment and the resultant product of movement. The system also treats the effects of constructive or destructive modification of vehicle and/or environment and the resultant impact on vehicle movement. The first-generation system, in computer code, serves to successfully combine all known parameters affecting vehicle movement, thereby taking total advantage of the state-of-the-art in related disciplines. Foreseeable and programmed improvements to the system imply significant advances in the state-of-the-arts of road deterioration analysis, vehicle reliability analysis, vehicle-road optimization, and overall allied material optimization. The VRCAMS consists of several sub-systems that respectively treat mobility and ride dynamics, traffic volume, structural characteristics, maintenance, and vehicle movement. The parameters in each of the sub-systems are brought together in a comprehensive manner to provide output data pertinent to vehicles moving on roads. Outputs provided by the VRCAMS include speed of given vehicles on specific road segments, traffic volumes that road segments can sustain at various levels of service, structural life of a specific road segment subjected to known quantities of traffic, maintenance requirements to extend road segment life, and delivery rate and travel time for vehicles on road segments. Refinements and additions to the current model will provide for a greater degree of accuracy and for a broader range of applications such as road and vehicle design optimization, optimum use of roads and vehicles, and improved logistical and tactical planning. KEYWORDS: Mobility models; Road capability models		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ENGINEER DESIGN TEST OF HEAVY-DUTY MEMBRANE AIRFIELD SURFACING		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report		
5. AUTHOR(S) (First name, middle initial, last name) Frank M. Palmer		
6. REPORT DATE February 1974	7a. TOTAL NO. OF PAGES 96	7b. NO. OF REFS 10
8a. CONTRACT OR GRANT NO. b. PROJECT NO. 1G764717DH01 c. Task 11 d.		9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report S-74-2 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 776 331
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT <p>Tests were conducted at the U. S. Army Engineer Waterways Experiment Station (WES) to determine the suitability of heavy-duty airfield surfacing and accessories as expedient membrane surfacing for water-proofing and dustproofing hastily prepared airfields for operations of C-130 aircraft. The objectives of the tests were: (a) To compare the heavy-duty membrane with the WX18 membrane, which was considered unsuitable as expedient surfacing for C-130 operations as a result of integrated engineering and service tests conducted at Fort Campbell, Kentucky, during 11 May-15 November 1966, and with the WX18 membrane, which showed some deficiencies during engineering tests at WES. (b) To determine through laboratory and field tests whether the heavy-duty membrane met the requirements of the Department of the Army approved Qualitative Materiel Requirement (QMR) for Prefabricated Airfield Surfacing. Laboratory tests conducted to determine the physical characteristics of the heavy-duty membrane indicated that the surfacing was equal or superior in strength to the WX18 and WX18 membranes. The tests also indicated that the surfacing met the QMR requirements with respect to weight, POL resistance, and high- and low-temperature resistance. Skid tests conducted to simulate locked-wheel braking action of C-130 aircraft in touchdown areas of assault runways indicated that the heavy-duty membrane possessed the durability of the WX18 membrane in that a comparable number of repetitive skids were required to produce failure of the surfacings. Skid tests were also conducted on the nonskid compound applied to the surfacing to determine if the compound would produce sufficient skid resistance for all-weather operations of C-130 aircraft (i.e., according to the QMR, possess a Runway Condition Reading (RCR) of 13-25). The tests indicated that the nonskid compound produced a skid resistance in the desired range of RCR's and provided adequate resistance to the abrasion of the test wheel. Placement and traffic tests were conducted on the surfacing to determine if it met the requirements of the QMR with respect to packaging, ease of placement, suitability of accessories, maintainability, and service life. The surfacing was placed directly on a prepared soil subgrade and subjected to rolling traffic of a C-130 wheel with a load equal to the equivalent single-wheel load of a C-130 aircraft. Test results indicated that the surfacing met the QMR specifications with regard to placement, and the amount of maintenance required was within acceptable limits. These test results indicated that the heavy-duty airfield surfacing is suitable for Army use as an expedient surfacing for hastily prepared assault airfields.</p>		
KEYWORDS: Dust control; Expedient surfacings; Membranes (Airfields); Traffic tests; Waterproofing; [C-130 aircraft]		

DD FORM 1 NOV 65 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Technical Report Documentation Page

1. Report No. FAA-RD-73-198, I	2. Government Accession No. AD 785 024	3. Recipient's Catalog No.	
4. Title and Subtitle COMPARATIVE PERFORMANCE OF STRUCTURAL LAYERS IN PAVEMENT SYSTEMS; VOLUME I: DESIGN, CONSTRUCTION, AND BEHAVIOR UNDER TRAFFIC OF PAVEMENT TEST SECTIONS		5. Report Date June 1974	
		6. Performing Organization Code	
7. Author(s) C. D. Burns, C. L. Rone, W. N. Brabston, H. H. Ulery, Jr.		8. Performing Organization Report No. Technical Report S-74-8	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory, P. O. Box 631 Vicksburg, Miss. 39180		10. Work Unit No. (TRIS)	
12. Sponsoring Agency Name and Address Office, Chief of Engineers, U. S. Army, and Federal Aviation Administration Washington, D. C.		11. Contract or Grant No. FA71WAI-218	
		13. Type of Report and Period Covered Final report	
14. Sponsoring Agency Code			
15. Supplementary Notes			
16. Abstract Rigid and flexible pavement test sections were constructed to evaluate the performance of pavements incorporating a membrane-enveloped soil layer, insulating materials, chemically stabilized soil layers, and various types of surfacing including fibrous-reinforced concrete, plain portland cement concrete, and asphaltic concrete. These test sections were trafficked with 200- and 240-kip twin-tandem assemblies (Boeing 747 spacing) and a 50-kip single-wheel assembly. The design, construction, and behavior under traffic of the pavements are reported herein; the data will be used in further studies to determine the response of the pavement to both static and dynamic loads and to develop design and construction criteria. These studies will be reported in subsequent volumes.			
17. Key Words Accelerated traffic tests Chemical soil stabilization Flexible pavements Membrane enveloped soil layers Rigid pavements		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 255	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Technical Report Documentation Page

1. Report No. FAA RD-73-198-III	2. Government Accession No. AD A005 893	3. Recipient's Catalog No.	
4. Title and Subtitle COMPARATIVE PERFORMANCE OF STRUCTURAL LAYERS IN PAVEMENT SYSTEMS VOLUME III: DESIGN AND CONSTRUCTION OF MESL		5. Report Date December 1974	
		6. Performing Organization Code	
7. Author(s) George M. Hammitt II		8. Performing Organization Report No. Technical Report S-74-8 Volume III	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory Vicksburg, Miss. 39180		10. Work Unit No. (TRIS)	
		11. Contract or Grant No. FA71WAI-218	
12. Sponsoring Agency Name and Address Federal Aviation Administration Systems Research & Development Service Washington, D. C. 20591		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract <p>This report describes design and construction procedures for membrane-encapsulated soil layers in airport pavement systems based on analyses of results of recent tests of full-scale accelerated traffic test sections. Included are descriptions of material and equipment requirements and recommended test methods. The procedures are applicable to both rigid and flexible airport pavement systems. Recent material developments and subsequent testing have demonstrated the structural integrity of MESL-type construction. It is believed that substantial savings can be realized using MESL's in airport pavements because of less strict material quality requirements and lower maintenance requirements due to the waterproofing protection provided by the MESL. Volume I of this report describes the conduct and results of tests of full-scale accelerated traffic test sections, and Volume II presents an analysis of the results and design and construction procedures for stabilized layers.</p>			
17. Key Words Flexible pavements Membrane construction Membrane design Membrane enveloped soil layers Rigid pavements		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 39	22. Price

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-74-9	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (a.u. Subtitle) RATTOCINATIVE DESIGN CRITERIA FOR MEMBRANE- ENVELOPED FINE-GRAINED SOIL LAYERS		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) George M. Hammitt II		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Mississippi 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army Washington, D. C. 20314		12. REPORT DATE November 1974
		13. NUMBER OF PAGES 194
14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Distribution limited to U. S. Government agencies only; computer program documentation; November 1974. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station (WESSV).		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Design standards Fine-grained soils Membrane enveloped soil layers		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This investigation consists of full-scale testing, laboratory evaluation, and presentation of improved design criteria using membrane-enveloped fine-grained soil (MESL) within pavement layers. The research provides a description of proven materials and necessary construction techniques. Cost predictions are developed using these materials and techniques and predictions are compared with actual costs. Material characterization was performed in the laboratory (Continued)		

DD FORM 1473 EDITION OF 1 NOV 68 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued)

and field using dynamic vibratory testing. The characteristics of materials employed in a full-scale MESL test section were used in a structural analysis of this type of load supporting media subjected to moving repetitive loadings. This analysis of stress conditions was facilitated by computer solution. Limiting criteria based on the shearing strain in the subgrade and the number of stress applications were developed as failure criteria. These criteria were formulated using performance data and model analyses. A design method using materials characterization, structural analysis, and failure criteria was presented to facilitate incorporation of a MESL technique into the design engineer's repertoire.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Technical Report Documentation Page

1. Report No. FAA-RD-74-34-I	2. Government Accession No. AD A000 456	3. Recipient's Catalog No.	
4. Title and Subtitle PRESTRESSED CONCRETE PAVEMENTS; VOLUME I: DULLES TEST ROAD INSTRUMENTATION AND LOAD TESTS		5. Report Date October 1974	6. Performing Organization Code
7. Author(s) Eugene C. Odom, Richard H. Ledbetter		8. Performing Organization Report No. Technical Report S-74-10 Volume I	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory Vicksburg, Miss. 39180		10. Work Unit No. (TRIS)	11. Contract or Grant No. FA71WAI-218
12. Sponsoring Agency Name and Address Federal Aviation Administration Federal Highway Administration Washington, D. C. 20591		13. Type of Report and Period Covered Final report	
14. Sponsoring Agency Code			
15. Supplementary Notes			
<p>16. Abstract</p> <p>This report describes the instrumentation of a prestressed concrete test road and the data obtained from a series of load tests conducted on the test road and presents an analysis of the data. The test road was constructed near Dulles International Airport, Washington, D. C., by the Federal Highway Administration. Bison strain sensors and U. S. Army Engineer Waterways Experiment Station and URS pressure cells were used to measure the strains, stresses, and deflections in the prestressed pavement, cement-treated base, and subgrade. Load tests were conducted using a truck to represent high loads and a load cart with a simulated Boeing 747 aircraft gear to represent aircraft loads.</p> <p>Design and construction procedures for prestressed concrete civil airport pavements are presented in Volume II of this report.</p>			
17. Key Words Prestressed concrete pavements Load tests (Pavements) Measuring instruments		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 56	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Technical Report Documentation Page

1. Report No. FAA-RD-74-34-II	2. Government Accession No. AD A003 477	3. Recipient's Catalog No.	
4. Title and Subtitle PRESTRESSED CONCRETE PAVEMENTS; VOLUME II: DESIGN AND CONSTRUCTION PROCEDURES FOR CIVIL AIRPORTS		5. Report Date November 1974	6. Performing Organization Code
7. Author(s) Eugene C. Odom, Paul F. Carlton		8. Performing Organization Report No. Technical Report S-74-10 Volume II	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory Vicksburg, Miss. 39180		10. Work Unit No. (TRAIS)	
12. Sponsoring Agency Name and Address Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20591		11. Contract or Grant No. FAT1WAI-218	
15. Supplementary Notes		13. Type of Report and Period Covered Final report	
16. Abstract This volume of this report recommends practices and procedures for design and construction of prestressed concrete pavements for civil airports. Volume I of the report describes and presents an analysis of the instrumentation and load tests of a prestressed concrete test road. For the design procedure, the basic load-stress relationships were developed from small-scale model tests employing static loadings. Stresses computed from Westergaard's theory for elastic behavior were adjusted by moment correction factors to reflect the redistribution of moments resulting from partial hinges that develop under the load. Effects of repetitive moving loads were examined both in small-scale models and in full-scale prototype test pavements. The design procedure permits interrelating magnitude of loading, load repetitions, flexural strength, subgrade conditions, pavement thicknesses, slab dimensions, and magnitude of prestress. Consideration also is given to the effects of elastic shortening, creep, and shrinkage of concrete, relaxation in steel tendons, anchorage systems, tendon friction, subgrade restraint, and temperature changes. Construction procedures and alternatives are examined based on a study of prototype test pavements and operational prestressed facilities constructed in this country and abroad. Recommendations are based on assessments of the relative merits of prestressing with and without tendons, pretensioning versus posttensioning, types of stressing tendons and conduits, bonded versus nonbonded tendons, expansion joints and joint seals, and subgrade friction-reducing layers.		14. Sponsoring Agency Code	
17. Key Words Construction Load tests (Pavements) Prestressed concrete pavements Rigid pavement design (Airfields)		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 77	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Technical Report Documentation Page

1. Report No. FAA-RD-73-206	2. Government Accession No. AD A001 408	3. Recipient's Catalog No.	
4. Title and Subtitle AIRCRAFT-PAVEMENT COMPATIBILITY STUDY		5. Report Date September 1974	6. Performing Organization Code
7. Author(s) F. H. Griffis and M. A. Gamon		8. Performing Organization Report No. Technical Report S-74-11	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory, P. O. Box 631 Vicksburg, Miss. 39180		10. Work Unit No. (TRIS)	11. Contract or Grant No. DACW 39-73-0041
12. Sponsoring Agency Name and Address Department of Transportation Federal Aviation Administration Washington, D. C.		13. Type of Report and Period Covered Final Report May 1971 - Nov 1973	
14. Sponsoring Agency Code			
15. Supplementary Notes Work was performed under contract DOT-FA71-WAI-218.			
16. Abstract An economic analysis was performed to relate pavement upgrading cost to penalty cost associated with adding gears and wheels to aircraft in order to provide adequate flotation for present-day pavement design criteria. A basic assumption was made that the <i>Widebody Jets</i> and a 15-million-lb aircraft (Categories I and II aircraft, respectively) would use the projected 26 major hub airports by the year 1985. Three gear types were designed for Categories I and II aircraft: current-flotation compatible with present pavement criteria; median-compromise design considering present pavement criteria and optimal gear for aircraft structure; and optimal-gear optimized for aircraft structure with no regard for pavement flotation requirements. Costs were based on each gear type for both categories of aircraft. Pavement data were surveyed for all projected 1985 major hub airports. Rigid and flexible pavement thicknesses were determined for Categories I and II aircraft; thicknesses were calculated both for new construction and for overlay of selected pavement areas where the aircraft might operate. Aircraft costs were developed as associated with carrying landing gear weight and volume in excess of the optimal gear. Pavement upgrading costs were determined and cost comparisons were made. Recommendations and devices were presented relative to policy decisions on pavement criteria.			
17. Key Words Cost analysis Landing gear Pavement design		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 232	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Technical Report Documentation Page

1. Report No. FAA-RD-74-31	2. Government Accession No. AD A003 123	3. Recipient's Catalog No.	
4. Title and Subtitle STEEL FIBROUS CONCRETE FOR AIRPORT PAVEMENT APPLICATIONS		5. Report Date November 1974	6. Performing Organization Code
7. Author(s) Frazier Parker, Jr.		8. Performing Organization Report No. Technical Report S-74-12	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory Vicksburg, Miss. 39180		10. Work Unit No. (TRAIS)	11. Contract or Grant No. FA71WAI-218
12. Sponsoring Agency Name and Address Office, Chief of Engineers, U. S. Army, and Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20590		13. Type of Report and Period Covered Final report	
15. Supplementary Notes		14. Sponsoring Agency Code FAA/ARD-430	
16. Abstract This report describes a study conducted to develop criteria for the design and construction of steel fibrous concrete airport pavements. Controlled, accelerated traffic tests and field tests conducted as a part of this study and similar tests conducted by other agencies are described and the results from these tests compiled. The results from all tests were analyzed and used in the formulation of criteria for designing steel fibrous concrete pavements and overlays. Recommended practices and procedures for batching, mixing, and placing fibrous concrete were formulated. Conclusions based on this study indicate that fibrous concrete pavements will perform better than plain concrete pavements, will result in thinner pavements, and can be produced and placed with conventional paving equipment and techniques.			
17. Key Words Fiber reinforced concrete Overlays (Pavements) Rigid pavement construction Rigid pavement design (Airfields)		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 205	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

E,P

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report M-75-3	2. GOVT ACCESSION NO. AD A017 853	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) DEVELOPMENT OF PROCEDURE FOR AIRFIELD SITE EVALUATION		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Malcolm P. Keown Judith A. Parks Jack K. Stoll		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Molality and Environmental Systems Laboratory P. O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project No. 4A062103A859, Task 05 4A162121AT31, Task 02
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army Washington, D. C. 20314		12. REPORT DATE October 1975
		13. NUMBER OF PAGES 93
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Airfield site selection Airfields Computer programs Evaluations Site investigations		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report describes the mathematical techniques used as the basis for developing a set of related computer programs that collectively represent an automated procedure for airfield site evaluation. A model that numerically delineates the topography of a selected site and a model for the layout of an airfield are analytically examined for compatibility. If the airfield and site geometries are determined to be compatible, construction time and cost (Continued)		

DD FORM 1473
1 JAN 73

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

estimates can be generated for vegetation clearing, topsoil stripping, excavation at a cut location and haulage of soil from the cut to a fill location, spreading of fill, soil compaction, and placement of a runway surface. The runway surfaces included in the inventory of the evaluation procedure are unsurfaced with or without membrane, light-duty mat with or without membrane, medium-duty mat with or without membrane, flexible pavement, and rigid pavement. Total time and costs are computed for construction of the airfield by a specified engineer construction unit at a selected site for any of the available surfaces. Appendix A describes the method used to calculate the runway surface elevation required to satisfy the change of slope criterion specified for the airfield. All variables used in the text are defined in Appendix B.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-1	2. GOVT ACCESSION NO. AD A005 151	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) EVALUATION OF EXPERIMENTAL POLYURETHANE-COATED MEMBRANES		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Timothy W. Vollar		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBER Project 1T062103A046 Task 05
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Materiel Command (AMCRD-TV) 5001 Eisenhower Avenue Alexandria, Va. 22304		12. REPORT DATE January 1975
		13. NUMBER OF PAGES 45
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Laboratory tests Resins (Synthetic) Membranes (Airfields) Traffic tests Polyurethane resins [C-130 aircraft] Protective coatings (Membranes)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Laboratory and field tests were conducted at the U. S. Army Engineer Waterways Experiment Station (WES) to evaluate experimental polyurethane-coated (PUC) membranes and materials that showed promise of improving the performance of membranes used to surface assault-type airfields for operation of C-130 aircraft. Six membranes were evaluated during this investigation. Because considerable test data had been collected previously at WES on T17 and WX18 membranes, these were used for comparison. The WX18 membrane strength properties were (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

considered desirable. Of the six PUC experimental membranes tested in the laboratory, three were selected for field evaluation. The polyurethane coatings on all three of the latter membranes withstood the abrasive action of the simulated skid tests of the C-130 aircraft better than the neoprene coatings of the T17 and WX18 membranes. Also, all three of these PUC membranes performed better during field tests with the simulated C-130 aircraft skids than the T17 membrane; however, none of them performed as well as the WX18 membrane. The polyurethane coatings did not perform as well as the neoprene coatings after storage. The polyurethane coatings deteriorated to a useless state during the 3-year storage tests. The rate of deterioration of the coatings was such that the three PUC membranes became unsuitable for use at different periods of time. Since field construction joints and repairs to membranes require use of an adhesive, liquid adhesives designed for field application with the PUC membranes were also evaluated. The results of laboratory tests performed on three adhesives indicated that no adhesive tested was suitable for the intended use. To provide an adequate braking surface during inclement weather, nonskid compounds were applied to the membrane surfacings. Two nonskid compounds which had been tested previously and found acceptable for use with neoprene-coated membranes were also applied to the PUC membranes for test purposes. Both nonskid compounds tested proved to be acceptable for use with the PUC membranes.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-2	2. GOVT ACCESSION NO. AD A006 144	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) FIELD TESTS OF T16 MEMBRANE BENEATH AM2-AM5- LANDING-MAT-SURFACED SATS AIRFIELD		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Richard H. Grau		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project No. 1T062103A046 Task 05
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Materiel Command (AMCRD-TV) Research, Development, and Engineering Directorate 5001 Eisenhower Ave., Alexandria, Va. 22304		12. REPORT DATE January 1975
14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)		13. NUMBER OF PAGES 30
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Landing mats [U. S. Naval ATF, Naval Air Station, Lakehurst, N. J.] Membranes (Airfields) Waterproofing [T16 membrane]		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study was conducted to determine the ability of a lightweight membrane (designated T16) to waterproof the soil subgrade beneath an AM2-AM5-landing-mat-surfaced Small Airfield for Tactical Support (SATS) runway and taxiway. The SATS runway and taxiway were located at the U. S. Naval Air Test Facility (NATF), Naval Air Station, Lakehurst, N. J. The runway was 2800 ft long and 36 ft wide. A 2100-ft-long catapult guide rail and a standard SATS catapult holdback arrangement were installed at the eastern end of the SATS runway. (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

The taxiway connected the SATS runway to the main NATF runway. An area 150 ft long and 72 ft wide located on the runway beneath the catapult hold-back arrangement and an area 150 ft long and 36 ft wide located on the taxiway were surfaced with T16 membrane. During the period April 1966-May 1972, 825 aircraft operations were conducted on the SATS runway. While the T16 membrane was in place, tests were also conducted to determine the effects of jet aircraft afterburner blast and heat on experimental AM5 metal landing mat. The results obtained in this study showed that T16 membrane: (a) waterproofed the soil subgrade beneath AM2 landing mat for a period of 72 months, (b) withstood the abrasive action caused by movement of the AM2 landing mat on the membrane surfacing for the full test period, (c) withstood blast and heat effects (maximum surface temperature of 1980°F) caused by jet aircraft afterburners during catapult launches when placed beneath AM5 landing mat, and (d) successfully resisted the puncturing effects of the gravelly sand (SP) subgrade when placed directly on the soil beneath the landing mat.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-8	2. GOVT ACCESSION NO. AD A012 144	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) EVALUATION AND SELECTION OF EXPERIMENTAL MEMBRANES FOR USE AS MEDIUM-DUTY SURFACING		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Albert J. Bush III		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P.O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project No. 1G764717DH01 Task 11
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Materiel Command (AMCRD-GP) 5001 Eisenhower Avenue Alexandria, Va. 22304		12. REPORT DATE June 1975
		13. NUMBER OF PAGES 82
14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Dust control Prefabricated membranes Helicopter landing pads Waterproofing Membrane surfacings Nylon fibers		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study evaluates experimental prefabricated membranes for use as expedient dustproofing and waterproofing mediums for current Army helicopters. Laboratory and skid tests were conducted on nine membrane candidates at the Waterways Experiment Station (WES) to select a medium-duty membrane that meets the Department of the Army approved Qualitative Materiel Requirement (QMR) for Prefabricated Airfield Surfacing. Skid tests determined the most critical helicopter with respect to locked-wheel braking or skid resistance. (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

The effects of the UH-1, CH-54A, and CH-54B helicopter landing gears were evaluated. The landing gear of the CH-54A with a single-wheel load of 17,700 lb and 95-psi tire-inflation pressure was selected as the most critical. Skid tests were conducted to simulate the locked-wheel braking effect of the CH-54A on each of the nine membranes. The results obtained in this study showed that (a) three of the membranes possessed the strength and durability required to support any helicopter requirements, (b) of these, only one membrane, a two-ply 13-oz-per-sq-yd nylon construction, met the weight requirements of the QMR, and (c) the coating should be neoprene rather than hypalon. It is recommended that a two-ply 13-oz-per-sq-yd nylon neoprene-coated membrane be engineer design tested as a medium-duty membrane.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-10	2. GOVT ACCESSION NO. AD B006 299L	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) DEVELOPMENT OF A STRUCTURAL DESIGN PROCEDURE FOR ALL-BITUMINOUS CONCRETE PAVEMENTS FOR MILITARY ROADS	5. TYPE OF REPORT & PERIOD COVERED Final report	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) William N. Brabston Walter R. Barker Gary G. Harvey	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U.S. Army Washington, D.C. 20314	12. REPORT DATE July 1975	
	13. NUMBER OF PAGES 141	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Distribution limited to U. S. Government agencies only; computer program documentation; July 1975. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Flexible pavement design (Highways) Military roads		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This investigation was undertaken to examine current concepts and practices with respect to the design of all-bituminous concrete (ABC) road pavements and to develop therefrom appropriate design criteria for Corps of Engineers (CE) use. After an extensive literature study, a theoretical layered elastic pavement model was selected for development of the design system. Input parameters for the system are based on loading conditions and material structural character- istics; i.e., modulus of elasticity E and Poisson's ratio ν . Thickness (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

values are determined based on limiting horizontal tensile strain at the bottom of the bituminous concrete layer and vertical compressive strain at the top of the subgrade. Strain criteria for the bituminous concrete were taken from work conducted by Shell Oil Company. The subgrade strain criteria are based on maximum computed strain values determined from the behavioral pattern inherent in conventional CE pavement design criteria. Thickness design curves were developed for design indexes of 1 to 10, and procedures are provided for determining material input values.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
Technical Report S-75-11, Volume I	AD A016 450	
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED
PAVEMENT RESPONSE TO AIRCRAFT DYNAMIC LOADS; VOLUME I: INSTRUMENTATION SYSTEMS AND TESTING PROGRAM		Final report
6. PERFORMING ORG. REPORT NUMBER		
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
Walter J. Horn Richard H. Ledbetter		DOT FA71WAI-218
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE
Federal Aviation Administration Systems Research & Development Service Washington, D. C. 20591		June 1975
13. NUMBER OF PAGES		
78		
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report)
		Unclassified
15a. DECLASSIFICATION/DOWNGRADING SCHEDULE		
16. DISTRIBUTION STATEMENT (of this Report)		
Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
Designated Report No. FAA-RD-74-39-I by Federal Aviation Administration, Washington, D. C.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Aircraft loads Flexible pavement performance and evaluation (Airfields) Load tests (Pavements) Measuring instruments Rigid pavement performance and evaluation (Airfields)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
This report describes a study designed to determine the relationship between airport runway pavement responses to static and dynamic aircraft loads. Two series of tests were conducted, one during cold weather and the other during warm weather, at the National Aviation Facilities Experimental Center Airport, Atlantic City, N. J. Both a flexible and a rigid pavement runway were instru- mented to measure and record pavement responses to aircraft loads. Aircraft were instrumented for both series to measure the aircraft wheel loads (Continued)		

DD FORM 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

transmitted to the pavement structures during normal aircraft operations. A common time code signal recorded along with the pavement response and aircraft load data provided the means for correlating the two types of data. Data were collected for the following basic aircraft modes of operation: static loading; creep-, low-, medium-, and high-speed taxi; high-speed braking; takeoff rotation; touchdown; high-speed braking with reverse thrust; and turning. This volume contains descriptions of the instrumentation systems and the program for testing. Volume II with Appendixes A and B contains the data reduction and analyses along with the resulting conclusions and recommendations for both the cold and the warm weather tests. Volume III is a summary of the entire study.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-11	2. GOVT ACCESSION NO. AD A022 806	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PAVEMENT RESPONSE TO AIRCRAFT DYNAMIC LOADS; Volume II: PRESENTATION AND ANALYSIS OF DATA		5. TYPE OF REPORT & PERIOD COVERED Final Report
7. AUTHOR(s) Richard H. Ledbetter		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) DOT FA71WAI-218
11. CONTROLLING OFFICE NAME AND ADDRESS Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20591		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1975
		13. NUMBER OF PAGES 204
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Designated Report No. FAA-RD-74-39-II by Federal Aviation Administration, Washington, D. C.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Aircraft loads Data processing Flexible pavement performance and evaluation (Airfields) Load tests (Pavements) Rigid pavement performance and evaluation (Airfields)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Instrumented aircraft were used to apply static and dynamic loads to instru- mented pavement structures (both flexible and rigid) at the National Aviation Facilities Experimental Center (NAFEC), Atlantic City, N. J. Volume I of this report describes the testing program and instrumentation systems. This volume and Appendixes A and B present the reduction and analysis of data and the test results. Volume III contains a compendium of the entire study. Measurements of relative displacement, velocity, pressure, and temperatures (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

were made in the two pavement structures. Two phases of material behavior (elastic and inelastic) in both flexible and rigid pavement structures were identified. Each phase had to be treated independently for a full analysis of the static and dynamic load test results.

The tests at NAFEC showed that no basic aircraft ground operating mode induced pavement responses (elastic plus inelastic) greater than those occurring for static loading conditions. However, the test results indicate that for stiff pavement structures, such as the rigid pavement and the flexible pavement during cold weather, unusual conditions (pavement conditions rougher than those during testing at NAFEC) of dynamic loading could possibly cause responses larger than what would occur under static loading. This behavior is possible because of the inelastic behavior being of low magnitude for the stiff pavements. The test results also indicate that a reduction in the thickness of pavement structures could be allowed in the interior of the runways except at exits where aircraft side thrust is high.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Technical Report Documentation Page

1. Report No. FAA-RD-74-39-11A	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle PAVEMENT RESPONSE TO AIRCRAFT DYNAMIC LOADS; VOLUME II: PRESENTATION AND ANALYSIS OF DATA; APPENDIX A: AUTOMATIC DATA PROCESSING	5. Report Date September 1975	6. Performing Organization Code
7. Author(s) Barry W. McCleave	8. Performing Organization Report No. Technical Report S-75-11 Volume II, Appendix A	10. Work Unit No. (TRAIS)
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180	11. Contract or Grant No. FA71WAI-218	13. Type of Report and Period Covered Final Report
12. Sponsoring Agency Name and Address Federal Aviation Administration Systems Research & Development Service Washington, D. C. 20591	14. Sponsoring Agency Code	
15. Supplementary Notes		
<p>16. Abstract</p> <p>This appendix describes the automatic data processing used in the reduction of aircraft dynamic load test data. Digital processing was used. The digitizing system generally consisted of a computer controlled analog-to-digital (A to D) converter, the computer, and output peripherals. Data signals passed through aliasing filters and through analog variable gain amplifiers. The signals were digitized by a multiplexer and the A to D converter at selected rates and stored on disc. Processing involved reading small portions of data from the disc, calibrating the data using engineering units read in from a high-speed paper tape reader, and performing operations on the data such as digital filtering and standard deviation calculations.</p> <p>Volume I of this report describes the testing program and instrumentation systems, and Volume II with Appendixes A and B presents the reduction and analysis of data and the test results. Volume III contains a summary of the entire study.</p>		
17. Key Words Aircraft loads Data processing Load tests (Pavements)	18. Distribution Statement Document is available to the public through the National Technical Information Service, Springfield, Va., 22151	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 70
		22. Price

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-79-11 Volume II, Appendix B	2. GOVT ACCESSION NO. AD A018 337	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PAVEMENT RESPONSE TO AIRCRAFT DYNAMIC LOADS; VOLUME II: PRESENTATION AND ANALYSIS OF DATA; APPENDIX B: DATA		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Richard H. Ledbetter		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) DOT FA71WAI-218
11. CONTROLLING OFFICE NAME AND ADDRESS Federal Aviation Administration Systems Research & Development Service Washington, D. C. 20591		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1975
		13. NUMBER OF PAGES 588
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Designated Report No. FAA-RD-74-39-IIB by Federal Aviation Administration, Washington, D. C.		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Aircraft loads Data processing Load tests (Pavements)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This appendix presents the reduced pavement response data for the aircraft dynamic load tests. Comparisons of static and dynamic load responses are shown. Summarized results are presented in Volume II of this report. Volume I de- scribes the testing program and instrumentation systems, and Volume II with Appendixes A and B presents the reduction and analysis of data and the test results. Volume II contains a compendium of the entire study.		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-11, Vol III	2. GOVT ACCESSION NO. AD A028 378	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PAVEMENT RESPONSE TO AIRCRAFT DYNAMIC LOADS; VOLUME III: COMPENDIUM		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Richard H. Ledbetter		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) Inter-Agency Agreement No. DOT FA71WAI-218
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Department of Transportation, Federal Aviation Administration, Systems Research and Development Service, Washington, D. C. 20591		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE June 1976
		13. NUMBER OF PAGES 92
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Also published as FAA Report No. FAA-RD-74-39-III.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Aircraft loads Flexible pavement performance and evaluation (Airfields) Load tests (Pavements) Rigid pavement performance and evaluation (Airfields)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Instrumented aircraft were used to apply static and dynamic loads to instrumented pavement structures (both flexible and rigid) at the National Aviation Facilities Experimental Center (NAFEC), Atlantic City, N. J. Volume I of this report describes the testing program and instrumentation systems. Volume II with Appendixes A and B presents the reduction and analysis of data and the test results. This volume contains a compendium of the entire study. (Continued)		

20. ABSTRACT (Continued).

Measurements of displacement, velocity, pressure, and temperature were made in the two pavement structures. Two phases of material behavior, elastic and inelastic, in both flexible and rigid pavement structures were identified. Each phase had to be treated independently for a full analysis of the static and dynamic load test results.

The tests at NAFEC showed that no basic aircraft ground operating mode induced pavement responses (elastic plus inelastic) greater than those occurring for static load conditions. However, extrapolations of the test results indicate that for stiff pavement structures (such as the rigid pavement, and the flexible pavement during cold weather) unusual conditions (pavement conditions rougher than those during testing at NAFEC) of dynamic loading could cause responses larger than what would occur under static loading. This behavior is possible because of the inelastic behavior being of low magnitude for stiff pavements. The test results also indicate that a reduction in the thickness of pavement structures could be allowed in the interior of runways except at exits where aircraft side thrust is high.

Technical Report Documentation Page

1. Report No. FAA-RD-73-205-I	2. Government Accession No. AD A017 511	3. Recipient's Catalog No.	
4. Title and Subtitle NONDESTRUCTIVE VIBRATORY TESTING OF AIRPORT PAVEMENTS; VOLUME I: EXPERIMENTAL TEST RESULTS AND DEVELOPMENT OF EVALUATION METHODOLOGY AND PROCEDURE		5. Report Date September 1975	6. Performing Organization Code
7. Author(s) James L. Green, Jim W. Hall	8. Performing Organization Report No. Technical Report S-75-14 Volume I		10. Work Unit No. (TRAIS)
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		11. Contract or Grant No. DOT FA71WAI-218	13. Type of Report and Period Covered Final report
12. Sponsoring Agency Name and Address Federal Aviation Administration Systems Research & Development Service Washington, D. C. 20591		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract Conventional direct sampling methods of airport pavement evaluation interfere with aircraft operations; therefore, an evaluation procedure based on nondestructive vibratory testing was developed. The procedure considers the parameters of pavement thickness and strength, soil strength, landing gear characteristics, and load repetition through correlation of FAA direct sampling procedures with the nondestructive data form termed the dynamic stiffness modulus, which is calculated from a vibratory load-deflection graph. The results indicated the need for standardized vibratory testing equipment, and specifications for a suggested model were written. Evaluation procedures were developed for rigid and flexible pavements which consider the environmental factors of temperature and frost-thaw action, the importance of test locations and quantities, and stabilized layers. Appendix A presents results of two correlations: (a) elastic deflection and pavement performance and (b) dynamic E-modulus and CBR. Appendix B presents the nondestructive testing and performance results on U. S. Army Engineer Waterways Experiment Station test sections and the effects of bound pavement thickness on the nondestructive test results in an attempt to develop overlay design. Appendix C gives procurement specifications for recommended nondestructive test equipment.			
17. Key Words Nondestructive tests Pavement performance and evaluation Pavements Test procedures Vibratory response tests		18. Distribution Statement Document is available to the public through the National Technical Information Service, Springfield, Va. 22151	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 201	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Technical Report Documentation Page

1. Report No. FAA-RD-73-205-II	2. Government Accession No. AD A013 681	3. Recipient's Catalog No.	
4. Title and Subtitle NONDESTRUCTIVE VIBRATORY TESTING OF AIRPORT PAVEMENTS; VOLUME II: THEORETICAL STUDY OF THE DYNAMIC STIFFNESS AND ITS APPLICATION TO THE VIBRATORY NONDESTRUCTIVE METHOD OF TESTING PAVEMENTS		5. Report Date April 1975	6. Performing Organization Code
7. Author(s) Richard A. Weiss		8. Performing Organization Report No. Technical Report S-75-14 Volume II	
9. Performing Organization Name and Address U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory, P. O. Box 631 Vicksburg, Miss. 39180		10. Work Unit No. (TRAIS)	11. Contract or Grant No. FA71-WAI-218
12. Sponsoring Agency Name and Address Department of Transportation Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20591		13. Type of Report and Period Covered Final report	
14. Sponsoring Agency Code			
15. Supplementary Notes			
16. Abstract A theoretical and experimental study of the dynamic load-deflection curves of pavements was conducted to determine the dependence of the measured dynamic stiffness values of a pavement on the type of vibrator that is used to make the measurements, and to correlate dynamic stiffness measurements obtained from different vibrators at the same pavement location. Experimental tests were conducted to verify the theoretical results. The dynamic load-deflection curves of pavements are found to be nonlinear, and a nonlinear vibration theory of pavements is developed to describe these curves. This study gives a method of determining the shear modulus and thickness of each pavement layer directly from the measured values of dynamic stiffness for a series of vibrator baseplate sizes. This method may be of practical value for nondestructively determining the subsurface structure of a pavement. Volume I, "Experimental Test Results and Development of Evaluation Methodology and Procedure," is being prepared and will be released soon.			
17. Key Words Dynamic loads Nondestructive tests Pavement deflection Pavement performance and evaluation Pavements Vibration response tests		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 110	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-75-17	2. GOVT ACCESSION NO. AD A019 205	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) DEVELOPMENT OF A STRUCTURAL DESIGN PROCEDURE FOR FLEXIBLE AIRPORT PAVEMENTS		5. TYPE OF REPORT & PERIOD COVERED Final Report
7. AUTHOR(s) Walter R. Barker William N. Brabston		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) DOT FA73WAI-377
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, and Federal Aviation Administration Washington, D. C.		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1975
		13. NUMBER OF PAGES 261
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Designated Report No. FAA-RD-74-199 by Federal Aviation Administration, Washington, D. C.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Design standards Flexible pavement design (Airfields)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A design procedure is presented for three types of flexible pavement: conven- tional, bituminous concrete, and chemically stabilized. These represent nearly all flexible pavements being constructed at this time. Designs are based on analytically determined strain values and experimental and labora- tory determined material fatigue strengths. Thus, the procedure can handle in a rational manner the possible variations in the properties of different pavement materials. An adaptation of the cumulative damage concept permits (Continued)		

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued)

the consideration of cyclic variation in bituminous materials due to variations in temperatures and the variation in subgrade strength resulting from freeze-thaw cycles.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-76-3	2. GOVT ACCESSION NO. AD A024 334	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) AN ITERATIVE LAYERED ELASTIC COMPUTER PROGRAM FOR RATIONAL PAVEMENT DESIGN		5. TYPE OF REPORT & PERIOD COVERED Final Report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Yu T. Chou		8. CONTRACT OR GRANT NUMBER(s) DOT FA73WAI-377
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, and Federal Aviation Administration Washington, D. C.		12. REPORT DATE February 1976
		13. NUMBER OF PAGES 67
14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Designated Report No. FAA-RD-75-226 by Federal Aviation Administration, Washington, D. C.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Computer programs Finite element method Pavement design		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study was conducted to develop a simple and easily operated computer program for the rational design of pavements. The program must yield results approximating those computed by the more sophisticated nonlinear finite element program. A linearly layered elastic computer program originally developed by the Chevron Oil Company was expanded and modified to include an iterative procedure for rational pavement design. Pavement response to multiple loads can be predicted using the nonlinear moduli of pavement materials. The new (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

program is designated CHEVIT. The program uses the iterative procedures to determine the nonlinear moduli of pavement materials and then computes the stresses and strains in the pavement under a single wheel load by the Burmister linear layered elastic computational method. The principle of superposition is used to account for multiple wheel loads. For completeness, the CHEVIT program also accounts for linear problems and single loads. Results computed by the iterative layered elastic program were compared with those computed by the nonlinear finite element program. Modifications and improvements to the iterative layered program were made accordingly. Comparison of computed and measured stresses and displacements are presented in Appendix A. Flow charts and an input guide are presented in Appendix B. Example problems and illustration of the use of the input guide are also presented.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-76-10	2. GOVT ACCESSION NO. AD A030 882	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) EVALUATION OF PARAMETERS AFFECTING HORIZONTAL STABILITY OF LANDING MATS		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Yu T. Chou, Walter R. Barker, William P. Dawkins		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Mississippi 39180		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army Washington, D. C. 20314		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project 4A762719ATJ1. Task 02, Work Unit 001
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1976
		13. NUMBER OF PAGES 63
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Landing mats Load tests (Pavements) [AM2, XM18, and X,19 landing mats]		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The parameters that affect the horizontal stability of airfield surfacing mats were studied by conducting a series of static full-scale buckling tests in the laboratory using various mats and lay patterns. AM2, XM18, and XM19 mats with simulated waterproofing were used in the testing. The mat test sections ranged from one to five panels wide with widths of up to 36 ft. It was found that the most predominant factor affecting the buckling load was the initial eccentricity characteristic of the mat system. Other factors were panel width, mat unit weight, and formation width. The magnitude of locking angle had no effect on the buckling load but did affect the profile of the buckled wave. The existence of resilient filler in the joints of the waterproofing mats reduced the locking angle but did not increase the buckling load.		

(Continued)

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

A series of buckling tests of model AM2 mats of various widths were conducted in the laboratory; the mats were obtained from Utah State University. The results enabled the extrapolation of full-scale mat tests from short widths in the laboratory to airfield widths.

Attempts were made to develop a mathematical model to compare with the buckling behavior of the prototype mats. It was found that the horizontal load at which buckling would be initiated depends almost exclusively on the vertical eccentricities existing in the mat at the time the load is applied; because of the random nature of initial irregularities in the real system, the initial buckling load is an unreliable measure of the load-carrying capacity of the system. Therefore, it was concluded that little benefit could be gained from more elaborate mathematical analyses directed toward a more exact determination of initial buckling load or of sustained postbuckling resistance. Analyses were thus made by a simplified articulated system composed of straight rigid bars and movement-free joints. Only qualitative comparisons between the idealized and real systems were made because (a) the joints of the real mat are not movement-free before locking, (b) there are shifts in the joints caused by horizontal load transfer through the joints during buckling.

Methods by which the stability can be increased included several alternative lay patterns. These patterns, which enhance the postbuckling behavior and may increase the initial buckling load, are suggested and explained.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-76-12	2. GOVT ACCESSION NO. AD A030 377	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) EVALUATION OF NONLINEAR RESILIENT MODULI OF UN- BOUND GRANULAR MATERIALS FROM ACCELERATED TRAFFIC TEST DATA		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Yu T. Chou		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) DOT FA73WAI-377
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, Washington, D. C. 20314 and Federal Aviation Administration, Washington, D. C. 20591		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE August 1976
		13. NUMBER OF PAGES 61
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Also published as Federal Aviation Administration Report FAA-RD-76-65.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Accelerated traffic tests Finite element method Flexible pavements Granular materials Stress-strain relations		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A method for evaluating the resilient moduli of unbound granular materials is presented herein. The moduli were back-calculated from correlations of per- formance data of numerous full-scale accelerated traffic test pavements with computed critical stresses and strains of test pavements. The test pavements consisted of conventional flexible pavements as well as all-bituminous concrete (ABC) pavements. The loadings include single and multiple wheels. The stresses and strains in the pavement structures were computed by the finite element (Continued)		

DD FORM 1 JAN 75 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

technique incorporated with the tried nonlinear stress-strain relations of pavement materials. A general discussion on the nonlinear characteristics of pavement materials and limitations of the finite-element computer program is presented. The parameters used to establish the correlations included (a) radial tensile strains at the bottom of the ABC, (b) maximum radial tensile strains and minimum ratios of radial tensile stress to vertical stress in the unbound granular layers, and (c) vertical strains at the subgrade surface. Parameter b was developed only for single-wheel loads. The principle of superposition was used in the computations for multiple-wheel load assemblies. In Appendix A, stresses and deflections computed by the nonlinear-finite element method as compared with actual measurements of stress and deflection for a full-scale flexible test pavement are given. The nonlinear resilient moduli used in the computations were evaluated from traffic test data presented in this report. The nonlinear characteristics of pavement materials under loads are discussed. It is recommended that the nonlinear resilient moduli presented in the report be used to compute pavement responses when laboratory repeated load test data on granular materials are not available.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-76-15	2. GOVT ACCESSION NO. AD A037 076	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PAVEMENT DETERIORATION ANALYSIS FOR DESIGN AND EVALUATION SYSTEMS		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Victor C. Barber Eugene C. Odom Robert W. Patrick		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army Washington, D. C. 20314		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project 4A162121AT31, Task 01, Work Unit 001 Project 4K078012AQ61, Task 02, Work Unit 001
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE December 1976
		13. NUMBER OF PAGES 139
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Field tests Pavement deterioration Roads		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This investigation was conducted to collect pertinent data from the field that, upon analysis, would provide for initial and partial development of deterioration relationships on roads subjected to vehicle traffic. The field tests were conducted in the Stanislaus National Forest near Sonora, California, on a road network that experienced extensive log-hauling traffic during the testing period. The testing included measuring the traffic volume and traffic weights, measuring the condition of the road surface, and (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

conducting various soil tests on the pavement and subgrade. This report contains a detailed discussion of the test procedures, results, and data analysis as well as a general summary of the road construction and maintenance in the testing area. Results of the field tests showed that definitive deterioration relationships could not be developed from the data collected but that a sustained test program could provide for the deterioration relationships desired.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

unconfined compression strength (UCS) tests were conducted for supplemental information.

The plastic axial strains were found to increase with number and magnitude of axial stress repetitions and to be dependent upon specimen stiffness.

The resilient modulus was found to decrease initially with stress repetitions, followed in some cases by a gradual increase with additional repetitions. It was also dependent upon specimen stiffness, deviator stress magnitude, and confining pressure. The magnitude of conditioning stress up to 70 percent of the static UCS was found to have little effect on M_r values.

The relationship between elastic and plastic strain is dependent upon specimen stiffness.

Poisson's ratio was found to be insensitive to number and magnitude of repetitive stress applications, confining pressure, and specimen stiffness.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report S-76-17	2. GOVT ACCESSION NO. AD A033 336	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) BEHAVIORAL CHARACTERISTICS OF GRAVELLY SAND AND CRUSHED LIMESTONE FOR PAVEMENT DESIGN		5. TYPE OF REPORT & PERIOD COVERED Final report
7. AUTHOR(s) Ed E. Chisolm Frank C. Townsend		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		8. CONTRACT OR GRANT NUMBER(s) DOT FA73WAI-377
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, Washington, D. C. 20314 and Federal Aviation Administration, Washington, D. C. 20591		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1976
		13. NUMBER OF PAGES 68
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Also published as Federal Aviation Administration Report FAA-RD-75-177.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Cohesionless soils Pavements Laboratory equipment Rut depth Materials Test procedures Pavement design		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Repeated load triaxial compression tests were conducted to develop and establish laboratory equipment and procedures for determining the resilient properties and rutting potential of cohesionless soils. Materials tested were a crushed limestone and gravelly sand, which were used as base and subbase course layers, respectively, in prototype pavement test sections at the U. S. Army Engineer Waterways Experiment Station.		

(Continued)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

The resilient properties were determined by subjecting single specimens to 100 load repetitions at various stress states (i.e., multistage tests), whereas the rutting potential was determined by subjecting comparison specimens to up to 100,000 load repetitions of a single stress state. The resilient

modulus is expressed as $M_R = K_1 \theta^{K_2}$, where K_1 and K_2 are constants and θ equals $\sigma_1 + 2\sigma_3$.

For θ values less than 100 psi, the resilient modulus value was less for the gravelly sand than for the dense crushed limestone. However, for θ values greater than 100 psi, the resilient modulus was nearly identical for both materials. The resilient Poisson's ratio was found to increase as the stress ratio σ_1/σ_3 also increased.

The rutting potential of the two materials was about the same at lower stress ratios; however, at higher stress ratios, the rutting potential of the gravelly sand exceeded that of the crushed limestone. The rutting potential of both materials was found to be very small.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

M, E, P

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER PSTIAC Report No. 1	2. GOVT ACCESSION NO. AD A011 269	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MICROTHESAURUS OF VEHICLE MOBILITY, ENVIRONMENT, AND PAVEMENT TERMS		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station P. O. Box 631 Vicksburg, Mississippi 39180		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Materiel Command AMCRD-EM Alexandria, Virginia 22333		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project 1E865803M761/05
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE April 1975
		13. NUMBER OF PAGES 132
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Prepared as a joint project of the Pavements and Soil Trafficability Information Analysis Center and Technical Information Center, USAEWES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Environment terminology Thesauri Microthesauri Vehicle terminology Mobility terminology Pavements terminology Subject index terms		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The terms in the microthesaurus cover three major areas of interest: vehicle mobility, environment, and pavements, as related primarily to military research. Non-technical terms common to all subject areas in research and development are included to provide a complete vocabulary of concepts. The microthesaurus will become part of a largerversion encompassing several subject areas of particular interest at the U. S. Army Engineer Waterways Experiment Station. The format, rules, and conventions used in this document generally follow		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

those recommended by the Committee on Scientific and Technical Information (COSATI), and used in the Thesaurus of Engineering and Scientific Terms (TEST).

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and including annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL SOLIDIFICATION PROJECT		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase I		
5. AUTHOR(S) (first name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
15 March 1948	258	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
W-44-009-ENG-408		
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 1	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Fort Belvoir, Virginia
13. ABSTRACT		
<p>This report describes the preliminary laboratory investigations which have been undertaken to determine the most promising types of agents for chemical soil solidification. The major objective at this time has been to find what classes of chemicals will give the action desired; later work will attempt to find the specific agents which can be most easily and economically applied, giving the strongest product. Part I, Laboratory Investigations and Recommendations; Part II, Literature Review; and Part III, Bibliography.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		24. REPORT SECURITY CLASSIFICATION	
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified	
3. REPORT TITLE		25. GROUP	
SOIL SOLIDIFICATION BY CHEMICAL METHODS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final Report, Phase II			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
March 1950	352		
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)		
W-44-009-ENG-408			
b. PROJECT NO.			
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
d.	WES Contract Report No. 3-2, No. 2		
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		Engineer Research and Development Labs. Fort Belvoir, Virginia	
13. ABSTRACT			
<p>This report covers over two years search for chemical agents to solidify soil. Also covered are progress made on the development of laboratory facilities and techniques for the determination of the mineral and chemical composition of soils and preliminary studies on admixing chemicals into soil.</p>			
<p>KEYWORDS: Chemical soil stabilization</p>			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
3. REPORT TITLE		23. GROUP
SOIL SOLIDIFICATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase IV		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1952	219	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
DA-44-009-ENG-924		
9. PROJECT NO.		
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 4	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Fort Belvoir, Virginia
13. ABSTRACT		
<p>The research conducted by the M.I.T. Soil Stabilization Laboratory during the period covered by this report is divided into four parts: chemical, soil composition, engineering properties and mixing. The great majority of the effort was expended in the chemical work. This work was aimed at learning more about the nature and effect of the calcium acrylate treatment and at finding better stabilizers.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		24. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
		25. GROUP
3. REPORT TITLE		
SOIL SOLIDIFICATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase V		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	76. TOTAL NO. OF PAGES	75. NO. OF REFS
November 1953	288	
30. CONTRACT OR GRANT NO.	50. ORIGINATOR'S REPORT NUMBER(S)	
DA-44-009-ENG-1494		
A. PROJECT NO.		
	55. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 5	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Fort Belvoir, Virginia
13. ABSTRACT		
<p>For presentation in this report the soil solidification research has been divided as follows: Chemical, Section III of this report; Soil Composition, Section IV; Engineering Properties, Section V; Mixing, Section VI; and Permeability, Section VII. Also presented are abstracts of student thesis research conducted under non-Army sponsorship. The most immediately valuable contribution of the year's work was the development of a stabilizer, methylene-bis-acrylamide/acrylic acid/acrylamide, which appears considerably better than calcium acrylate.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified.)</small>		
1. ORIGINATING AGENCY (Corporate author)		2. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
3. REPORT TITLE		2b. GROUP
SOIL SOLIDIFICATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase VI		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1954	128	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DA-44-009-ENG-2002		
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 6	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
		Engineer Research and Development Labs. Fort Belvoir, Virginia
13. ABSTRACT		
<p>For presentation in this report the soil solidification research has been divided as follows: Chemical, Section III; Soil Compositions, Section IV; and Mixing, Section V. Also presented are abstracts of student thesis research conducted under non-Army sponsorship.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
3. REPORT TITLE		2b. GROUP
SOIL STABILIZATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase VII		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1955	281	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-ENG-171		
8b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Report No. 3-2, No. 7	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
13. ABSTRACT		
<p>The object of this study was to stabilize soil by polymerizing in the soil well dispersed water-insoluble vinyl monomers, to obtain products without the inherent undesirable water sensitivity of acrylic salt-stabilized soils. Work was also done to explore further the previously found soil stabilizing ability of epoxy resins, and to find formulations which would permit satisfactory strength development under wet conditions. The possibility of improving the utility of asphalt as a stabilizer for fine-grained soils by the use of trace quantities of chemical additives known to react with asphalt, or with soil-mineral surfaces was explored. Two investigations were made to see if the engineering properties of soils stabilized with cement could be improved by the addition of various chemicals in trace amounts (1% of the dry soil weight). These two investigations dealt respectively with the chemical treatment of (a) cement-modified soil, and (b) soil-cement. Chemical alteration of soil properties, effect of chemicals on mixing of kaolin-water pastes, accelerated curing of asphalt-stabilized soil samples, and studies supported by non-army funds, are reported.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473 1 NOV 55

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

STANDARD REPORT DATA - R & D		
<small>(Indicate classification of this report and its abstract when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Acquiring agency)		20. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
2. REPORT TITLE		
SOIL STABILIZATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase VIII		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1956	155	
8. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER	
DA-22-079-ENG-171		
9. PROJECT NO.	9b. OTHER REPORT NOS. (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 8	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
13. ABSTRACT		
This phase reports on asphalt as a soil stabilizer, soil stabilization with phosphoric acid, chemical modification of soil-cement, stabilization with polymerizable materials, effect of trace chemicals on soil stability, and related studies sponsored by non-army funds.		
KEYWORDS: Chemical soil stabilization		

DD FORM 173
1 NOV 56

REPLACES DD FORM 173, 1 JAN 55, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Security Studies 1000

(Sexual classification of HbA_{1c} levels of diabetic and nondiabetic population must be updated when the overall report is classified)

DD FORM 1473 1 NOV 64 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and index annotation must be entered when the report is classified)</small>		
1. ORIGINATING AGENCY (Name and address)		2. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
3. REPORT TITLE		2b. GROUP
SOIL SOLIDIFICATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase X		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1958	169	
3a. CONTRACT OR GRANT NO.	6a. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-ENG-171		
b. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	WES Contract Report No. 3-2, No. 10	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
13. ABSTRACT		
<p>Studies on stabilization of soils (Massachusetts Clayey Silt and Vicksburg Buckshot Clay) with phosphoric acid and secondary additives have been continued. Studies of the effect of various sodium compounds on the properties of cement-stabilized fine-grained soils of widely different composition have been completed. Success has been realized in preparing stable asphalt emulsions containing various cationic, anionic, nonionic, and amphoteric surface active agents, and certain combinations thereof, for use as soil stabilizers. Studies of cone-penetration, and water-uptake and swelling of Vicksburg Buckshot Clay, both untreated and treated with trace-quantities (0.3%) of Rosin Amine D Acetate, have thrown considerable light on the bonding forces within clay soils, and the role of water in influencing soil cohesion.</p>		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473 1 NOV 55

REPLACES DD FORM 1473, 1 JAN 54, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

[illegible]

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

DD FORM 1473 NOV 64 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

377

Unclassified

DOCUMENT CONTROL DATA - R & D		
<i>(Source classification of title, body of abstract and indexing notation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Massachusetts Institute of Technology Cambridge, Massachusetts		Unclassified
		2b. GROUP
3. REPORT TITLE		
SOIL STABILIZATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report, Phase XII		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1960	75	6
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-ENG-171		
9. PROJECT NO.		
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	WES Contract Report No. 3-2, No. 12	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
13. ABSTRACT		
Soil stabilization with acidic phosphorus compounds, soil stabilization with cement, soil stabilization with lime, soil stabilization with sodium silicates, and soil stabilization with asphalt emulsions, were investigated.		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

DOCUMENT CONTROL DATA - N & D		
<small>(Source: classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author) Massachusetts Institute of Technology Cambridge, Massachusetts		12. REPORT SECURITY CLASSIFICATION Unclassified
		13. GROUP
2. REPORT TITLE SOIL STABILIZATION BY CHEMICAL METHODS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report, Phase XIII		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE November 1961	7a. TOTAL NO. OF PAGES 114	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-22-079-ENG-288	9a. ORIGINATOR'S REPORT NUMBER(S)	
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
6.	WES Contract Report No. 3-2, No. 13	
4.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT Studies include soil stabilization with acidic phosphorous compounds and secondary additives, staobilization of soils with lime, soil stabilization with asphalt emulsions, soil stabilization with an Iron-aluminum salt of phosphoric acid, evaluation of soil stabilizers, and effective stresses in stabilized soils.		
KEYWORDS: Chemical soil stabilization		

DD FORM 1473
1 NOV 61

REPLACES DD FORM 1473, 1 JAN 61, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author) Engineering Experiment Station Kansas State College Manhattan, Kansas		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE ANALYTICAL STUDIES OF LANDING MATS FOR FORWARD AIRFIELDS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report			
5. AUTHOR(S) (First name, middle initial, last name) Gerald Pickett			
6. REPORT DATE December 1951		7a. TOTAL NO. OF PAGES 82	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-22-079-ENG-44		9a. ORIGINATOR'S REPORT NUMBER(S)	
8b. PROJECT NO.			
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		WES Contract Report No. 4-9	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. DISTRIBUTION STATEMENT (If different from 10)	
13. ABSTRACT This research deals with the mathematical solutions for deflections, moments, and reactive pressures of landing mats under load for idealized assumptions.			
KEYWORDS: Airfields; Landing mats; Mathematical analysis			

DD FORM 1473
1 NOV 66REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
University of Wisconsin Madison, Wisconsin		Unclassified
		2b. GROUP
3. REPORT TITLE		
ANALYTICAL STUDIES OF ORTHOTROPIC LANDING MATS FOR FORWARD AIRFIELDS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report		
5. AUTHOR(S) (First name, middle initial, last name)		
Gerald Pickett		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1953	38	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-ENG-114		
8b. PROJECT NO.		
DA Project No. 8-69-04-004		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	WES Contract Report No. 4-10	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. ADDITIONAL NOTES		12. TECHNICAL SUBJECT TERMS
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
13. ABSTRACT		
<p>This research deals with the mathematical solutions for deflections of landing mats under concentrated and distributed loads and supported by an elastic solid foundation. The effects of three rigidities, longitudinal, transverse, and torsional, in reducing deflections are studied.</p>		
KEYWORDS: Airfields; Landing mats; Mathematical analysis		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 55, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

AD-A045 026

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG--ETC F/G 1/5
A BIBLIOGRAPHY WITH ABSTRACTS OF U. S. ARMY ENGINEER WATERWAYS --ETC(U)
AUG 77 M P MEYER, V DALE
PSTIAC-5-VOL-2-PT-2

UNCLASSIFIED

NL

5 of 5
AD
A045026



END
DATE
FILMED
11-77
DDC

Unclassified

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) Department of Civil Engineering Columbia University New York, New York		2a. REPORT SECURITY CLASSIFICATION Unclassified
3. REPORT TITLE INFLUENCE VALUES FOR CERTAIN STRESSES AND DISPLACEMENTS IN A THREE-LAYER PAVEMENT SYSTEM FOR AIRFIELDS		2b. GROUP
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name) D. M. Burmister		
6. REPORT DATE June 1954	7a. TOTAL NO. OF PAGES 54	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-079-ENG-60	8b. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO.		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.	WES Contract Report No. 4-12	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. DISTRIBUTION STATEMENT (If different from 10)
13. ABSTRACT This report, as the first step in a comprehensive study of responses and behavior of Three Layer Pavement Systems, involved the numerical evaluation of the basic stress and displacement equations of the Burmister Three Layer System Problem for the stresses and displacements, which are presented in a series of influence diagrams. The values of the elastic constants and of the basic parameters of the three-layer system were selected after careful study to fall within the bracketing limits of the probable actual conditions encountered in present practice of airfield flexible pavement construction.		
KEYWORDS: Flexible pavement design (Airfields); Flexible pavements; Layered systems; Mathematical analysis		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DECLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</i>		
1. ORIGINATING ACTIVITY (Corporate author) Eustis Engineering Company Metairie, Louisiana		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ANALYSIS OF DATA; NON-DESTRUCTIVE DYNAMIC SOIL TESTS AT AASHO ROAD TEST		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE September 1963	7a. TOTAL NO. OF PAGES 92	7b. NO. OF REFS 19
8a. CONTRACT OR GRANT NO. DA-22-079-ENG-349	8b. ORIGINATOR'S REPORT NUMBER(S)	
8. PROJECT NO.		
9.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
4.	WES Contract Report No. 4-79	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. DISTRIBUTION STATEMENT
13. ABSTRACT The primary purpose of this investigation was to determine if non-destructive test methods would provide data indicative of the strength of various pavements. Another aim of the investigation was to determine, if possible, the effect of overload military traffic. The investigation consisted of forty-one (41) field dynamic tests conducted with equipment designed by the Waterways Experiment Station, patterned after that reported by Jones. The dynamic tests were performed by personnel of the Waterways Experiment Station, Vicksburg, Mississippi. The test data reported herein were furnished to Eustis Engineering Company, whose personnel analyzed the test results and prepared this report.		
KEYWORDS: AASHO road test; Dynamic loads; Dynamic tests; Nondestructive tests; Pavements		

DD FORM 1 NOV 65 1-73

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)</small>		
1. ORIGINATING ACTIVITY (Corporate author) Eustis Engineering Company Metairie, Louisiana		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE ANALYSIS OF DATA; NON-DESTRUCTIVE DYNAMIC SOIL TESTS, FOSS FIELD, SIOUX FALLS, SOUTH DAKOTA		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE January 1964	7a. TOTAL NO. OF PAGES 71	7b. NO. OF REFS 18
8a. CONTRACT OR GRANT NO. DA-22-079-ENG-349	8b. ORIGINATOR'S REPORT NUMBER(S)	
8c. PROJECT NO.		
9a. OTHER REPORT NO(S) (A - other numbers that may be assigned this report)	WES Contract No. 4-85; AD 757 417	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. ABSTRACT Prepared under contract for the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		
12. ABSTRACT The primary purpose of the dynamic investigation was to determine if non-destructive test methods would provide data indicative of the strength of pavements and/or soils. Another purpose of the study was to determine, if possible, a correlation between the results of dynamic and conventional tests. The investigation consisted of twelve (12) field dynamic tests conducted with equipment designed by the Waterways Experiment Station patterned after that reported by Jones. The dynamic tests were performed by personnel of the Waterways Experiment Station, Vicksburg, Mississippi. The test data reported herein were furnished to Eustis Engineering Company, whose personnel analyzed the test results and prepared this report.		
KEYWORDS: Dynamic loads; Dynamic tests; Nondestructive tests; Pavements; [Foss Field, Sioux Falls, S. D.]		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)

1. ORIGINATING ACTIVITY (Corporate author) School of Civil Engineering Purdue University Lafayette, Indiana		2a. REPORT SECURITY CLASSIFICATION Unclassified	
3. REPORT TITLE LABORATORY THERMAL EXPANSION MEASURING TECHNIQUES APPLIED TO BITUMINOUS CONCRETE		2b. GROUP	
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (First name, middle initial, last name) C. C. Hooks W. H. Goetz			
6. REPORT DATE August 1964	7a. TOTAL NO. OF PAGES 245	7b. NO. OF REFS 110	
8a. CONTRACT OR GRANT NO. DA-22-079-CIVENG-62-77	8b. ORIGINATOR'S REPORT NUMBER(S)		
8. PROJECT NO.	8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		WES Contract Report No. 4-102; AD 757 419	
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.			
12. ABSTRACT The purpose of this investigation has been to measure the linear and volumetric thermal expansion of laboratory specimens of various bituminous mixes over a broad range of temperatures. The temperature ranges investigated are those representative of arctic, subarctic, and temperate geographical areas. The primary purpose of the study has been to investigate several methods of measuring the thermal expansion. Then by a comparison of the methods, by means of results, ease of technique, degree of accuracy, and cost, the most desirable method was selected for use in further studies. Investigation of volumetric as well as linear expansion was conducted. In order to afford some means of comparison of the various test methods, mixes were varied by changing asphalt content, grade of asphalt, means of compaction, and type of aggregate. The effects of these variables on the expansive characteristics of the resulting mixes was also investigated.			
KEYWORDS: Asphalt mix design; Asphalt tests; Bituminous concretes			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) Republic Aviation Corporation Farmingdale, Long Island, New York		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE FEASIBILITY STUDY ON THE DESIGN AND DEVELOPMENT OF A VTOL BLAST CONTROLLING PLATFORM		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (Last name, first name, initial) Bartha, S. Ringler, F. H.		
6. REPORT DATE August 1965	7a. TOTAL NO. OF PAGES 82	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-22-079-eng-435 b. PROJECT NO. c. 1 D021701A047 d.	9a. ORIGINATOR'S REPORT NUMBER(S) Technical Report No. C-6091-05 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) U. S. Army Engineer Waterways Experiment Station Contract Report No. 3-123	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		AD 626 617
11. SUPPLEMENTARY NOTES Conducted for U. S. Army Engineer Waterways Experiment Station, Corps of Engineers, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command
13. ABSTRACT A concept was developed for a portable vertical take-off and landing blast diverting platform which would direct the exhaust blast away from the aircraft and into the air to prevent terrain erosion, hot gas reingestion, ground effects, and signature. The platform would be assembled on site from modular sections, each section containing deflector vanes and topped by a load bearing grid. The feasibility of this concept has been demonstrated by scale model testing in the Gas Dynamics Laboratory at Republic Aviation Corporation. The results indicate that such a platform is efficient in conducting engine exhaust blast and accompanying entrained air away from the aircraft. Significant reduction in thrust loss and lower surface temperature on the aircraft model were observed. KEYWORDS: Blast resistant surfaces; Exhaust blast; Scale models; Vertical take-off and landing aircraft		

DD FORM 1473
1 JAN 64

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) Department of Civil Engineering University of California Berkeley, California		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE BEHAVIOR OF STABILIZED SOILS UNDER REPEATED LOADING; Report 1, BACKGROUND, EQUIPMENT, PRELIMINARY INVESTIGATIONS, REPEATED COMPRESSION AND FLEXURE TESTS ON CEMENT-TREATED SILTY CLAY		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 1 of a series		
5. AUTHOR(S) (Last name, first name, initial) Mitchell, James K.; Shen, Chih-Kang; Monismith, Carl L.		
6. REPORT DATE December 1965	7a. TOTAL NO. OF PAGES 133	7b. NO. OF REFS 30
8a. CONTRACT OR GRANT NO. Contract No. DA-22-079-eng-414	9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 1-V-0-21701-A-046-05		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 632 802	
d.	WES Contract Report No. 3-145, Report 1	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract with U. S. Army Engineer Waterways Experiment Station		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command
13. ABSTRACT Current methods of pavement design using stabilized soils as components of the pavement structure generally base selection of both quality and thickness of those materials on static tests such as the CBR procedure. To validate such procedures, the objectives of these studies are to evaluate the behavior of stabilized soils under dynamic loading conditions and develop improved criteria for quality design and thickness selection within a more rational framework. More specifically the study is concerned with examination of soil stabilization requirements established by the Corps of Engineers for military roads and airfields in the theater of operations within this framework. Two soils, Vicksburg Silty Clay and Vicksburg Buckshot Clay, were selected for study because of the considerable performance data on these soils and because, through suitable treatment, they fall within the range of stabilization requirements of the Corps. To date, most of the dynamic testing has been performed on the treated silty clay. In general the results obtained thus far indicate that cement-treated soil designed to meet Corps' criteria for CBR and compressive strength can withstand repeated compressive and flexural stresses of the magnitude and number prescribed for different classes of military operations. However, more detailed investigation of the influence of water content, mixing procedures, and method of compaction are required since the data obtained show that these variables significantly affect the strength and resilience characteristics of the cement-treated silty clay. KEYWORDS: Cement soil stabilization; Clays; Dynamic loads; Load tests (Pavements); Pavement design; Soil stabilization		

DD FORM 1473
JAN 64

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Department of Civil Engineering University of California Berkeley, California		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE BEHAVIOR OF STABILIZED SOILS UNDER REPEATED LOADING; Report 3, REPEATED COMPRESSION AND FLEXURE TESTS ON CEMENT- AND LIME-TREATED BUCKSHOT CLAY, CONFINING PRESSURE EFFECTS IN REPEATED COMPRESSION FOR CEMENT-TREATED SILTY CLAY			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 3 of a series			
5. AUTHOR(S) (First name, middle initial, last name) James K. Mitchell P. J. Fosberg Carl L. Monismith			
6. REPORT DATE May 1969		7a. TOTAL NO. OF PAGES 117	7b. NO. OF REFS 12
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. 1T062103A046-05			
C.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 863 756	
D.		WES Contract Report No. 145, Report 3	
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT This report presents the results of investigations of the following aspects of the behavior of stabilized soils under the action of repeated loading: (1) behavior of cement-treated buckshot clay under repeated compressive stresses; (2) behavior of lime-magnesium sulfate treated buckshot clay under repeated compressive and flexural stresses; (3) effect of confining pressure on the resilience properties of cement-treated silty clay. Significant findings include: (1) although strength as measured by the CBR test for different soils treated with various types of stabilizers may be the same, the behavior under repeated loading may be distinctly different; (2) there appears to be a "critical curing time" below which beneficial effects are obtained by repeated loading. Beyond this curing time the resilient properties are relatively independent of load repetitions but depend on curing time during the repeated loading period; (3) in general the resilient modulus in flexure exceeds that in tension, and strengths in flexure and compression are different; (4) a relationship has been developed between resilient modulus and the first stress invariant, major principal stress, and curing time. This type of relationship should be useful in the analysis of stresses and deformations in pavements containing stabilized layers.			
KEYWORDS: Cement soil stabilization; Clays; Flexural strength; Lime soil stabilization; Load tests (Pavements); Soil stabilization			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

3/10

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) Department of Civil Engineering University of California Berkeley, California		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE BEHAVIOR OF STABILIZED SOILS UNDER REPEATED LOADING; Report 4, STRESSES AND DEFLECTIONS IN CEMENT-STABILIZED PAVEMENTS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 4 of a series		
5. AUTHOR(S) (First name, middle initial, last name) Mian-Chang Wang James K. Mitchell Carl L. Monismith		
6. REPORT DATE October 1970	7a. TOTAL NO. OF PAGES 223	7b. NO. OF REFS 42
8a. CONTRACT OR GRANT NO. DA-22-079-eng-414		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1-V-0-21701-A-046-05		
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 877 607
d.		WES Contract Report No. 145, Report 4
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT The applicability of available theories for predicting the induced stress and deflection response of cement-stabilized soil pavements to load was investigated. The study was divided into three phases: field repeated plate load testing on two test pavements; laboratory study of representative specimens, including laboratory-compacted and undisturbed specimens taken from the field; and prediction of stresses and deflections in test pavements using available theories in conjunction with the appropriate measured values of material properties. Two 20- by 20-ft, 8-in.-thick test pavements were constructed using a cement-stabilized silty soil over the natural clay subgrade. Pavement 1 contained 3% cement, and Pavement 2 contained 6% cement by dry weight of soil. Repeated plate load tests were conducted using a range of plate sizes and pressures. Measurements included: surface deflection, subgrade deflection, tensile radial strain at the bottom of the cement-stabilized soil layer, and vertical compressive stress at the surface of the subgrade. Both repeated-load triaxial compression tests and repeated flexural tests were conducted in the laboratory. The variables studied included applied repeated deviator stress, confining pressure, curing time, and compaction delay. Field behavior was analyzed using both n-layer elastic theory and the finite element method. Solutions by both methods were obtained using a CDC 6400 digital computer. The good agreement obtained between measured and predicted stresses and deformations suggests that stresses and deflections in cement-stabilized soil pavements can be predicted successfully using elastic layer theory and finite element analysis together with material properties determined from laboratory repeat-load tests on undisturbed specimens taken from test pavements. Such results indicate that it may be possible to develop a procedure for pavement thickness design that limits critical stresses and strains within a pavement to acceptable values. KEYWORDS: Cement soil stabilization; Load tests (Pavements); Pavement deflection; Pavements; Plate bearing tests; Soil Stabilization; Stresses		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Department of Civil Engineering, University of California Berkeley, California		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE BEHAVIOR OF STABILIZED SOILS UNDER REPEATED LOADING; Report 5, PERFORMANCE EVALUATION OF CEMENT-STABILIZED SOIL LAYERS AND ITS RELATIONSHIP TO PAVEMENT DESIGN			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Report 5 of a series			
5. AUTHOR(S) (First name, middle initial, last name) James K. Mitchell Tzou-Shin Heng Carl L. Monismith			
6. REPORT DATE August 1972		7a. TOTAL NO. OF PAGES 177	7b. NO. OF REFS 55
8a. CONTRACT OR GRANT NO. DA-22-079-eng-414		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 1-V-0-21701-A-046-05			
c.		9b. OTHER REPORT NO.(S) (Any other numbers that may be assigned this report) AD 747 352	
d.		WES Contract Report No. 145, Report 5	
10. DISTRIBUTION STATEMENT 1 for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT Properties of cement-stabilized soils were interrelated, and the performance of field sections previously tested (1963-1964) at the Waterways Experiment Station (WES), Vicksburg, Mississippi, was evaluated for the purposes of determining the validity of existing theory for prediction of pavement behavior and developing criteria and procedure for designing pavements containing soil layers stabilized with small amounts of cement. Field test sections of three different thicknesses were constructed of Vicksburg silty clay stabilized with 3%, 6%, and 10% cement contents on a heavy clay subgrade prepared to CBR values of 4 and 10, and tested under 10,000, 25,000, and 50,000-pound single-wheel loads. A failure criterion was defined according to rut depth, and the equivalency of different wheel loads (in terms of damage caused to the pavement) was determined. The results of the performance analysis showed that there was a linear relationship between pavement thickness and log of number of coverages at failure. For a given number of coverages of a given wheel load, the required pavement thickness decreased significantly with increase of cement content up to about 6% cement, but only a slight decrease in required thickness was found for higher cement contents. The unconfined compressive strength, an easily determined quantity, was found to be a suitable correlating parameter for other cement-stabilized soil properties, e.g., cohesion, friction angle, flexural strength and the CBR value. The resilient moduli of cement-stabilized soils could be expressed as functions of unconfined compressive strength, confining pressure, and repeated deviator stress. Hence, the unconfined compressive strength could be used as a design parameter readily adaptable for field application. The effects of curing time and compaction delay on unconfined compressive strength and differences in strength between undisturbed field samples and laboratory samples were studied. Design curves for cement-stabilized layers were developed based on the results of the performance analysis of the WES test sections.			
KEYWORDS: Cement soil stabilization; Load tests (Pavements); Pavement design			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Contract Report No. 3-145, Report 6	2. GOVT ACCESSION NO. AD A001 524	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) BEHAVIOR OF STABILIZED SOILS UNDER REPEATED LOAD- ING; Report 6, A SUMMARY REPORT WITH A SUGGESTED STRUCTURAL PAVEMENT DESIGN PROCEDURE		5. TYPE OF REPORT & PERIOD COVERED Report 6 of a series
7. AUTHOR(s) James K. Mitchell Peter Dzwilewski Carl L. Monismith		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Department of Civil Engineering University of California Berkeley, California 94720		8. CONTRACT OR GRANT NUMBER(s) DA-22-079-eng-414
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Materiel Command Alexandria, Virginia 22304		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Mississippi 39180		12. REPORT DATE October 1974
		13. NUMBER OF PAGES 160
		15. SECURITY CLASS. (of this report) Unclassified
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Cement soil stabilization Load tests (Pavements) Pavement design		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Results of previous investigations completed in this research are briefly sum- marized. This summary as well as the results of other investigations completed during the period of this investigation, also summarized where appropriate, form the basis for the design procedure recommended herein. The design pro- cedure is applicable to a two layer system - a cement stabilized layer resting on a subgrade. Stresses and deformations are estimated using layered elastic theory. Essentially the procedure consists of two phases, the first being (Continued)		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (continued)

the selection of a thickness adequate to prevent fatigue in the cement-stabilized layer and the second a check to insure that the combination of load and thermal stresses will not crack the stabilized layer. The procedure also recognizes the fact that cement stabilized bases will crack due to shrinkage stresses shortly after construction. This is accomplished by increasing the stresses and strains in the vicinity of the cracks by 50 percent over those computed for the uncracked situation. A series of design charts are presented which permit the selection of the thickness of the cement stabilized layer for a range in base stiffnesses of 100,000 to 3,000,000 psi, a range in subgrade stiffnesses of 1500 to 20,000 psi and for the following loading conditions: highway type vehicles - 13,000 lb single wheel load, 15,000 lb single axle load (dual tires), and 18,000 lb single axle load (dual tires); aircraft - AC-1: 10,000 lb single wheel load, C-130: 40,000 lb load (single tandem), C-141: 144,700 lb load (twin tandem), and Boeing 747: 162,000 lb load (twin tandem). Base and subgrade stiffnesses either can be determined from laboratory tests or estimated by several approximate procedures briefly outlined in the report. Comparisons of thicknesses selected by this procedure for highway type loading conditions with those by existing procedures indicate that the suggested procedure produces comparable thicknesses. Generally, the thicknesses are at a level to minimize initial cracking in the pavement and may, therefore, be conservative for few repetitions of heavy loads.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) Materials Research and Development, Inc. Oakland, California		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE MATERIALS FOR DUST CONTROL OF ROADS AND AIRFIELDS IN THE THEATER OF OPERATIONS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) F. S. Rostler W. R. Mitten C. A. Dallas		
6. REPORT DATE May 1967	7a. TOTAL NO. OF PAGES 122	7b. NO. OF REFS 24
8a. CONTRACT OR GRANT NO. DA-22-079-eng-483	9a. ORIGINATOR'S REPORT NUMBER(S) Report No. RD1058	
b. PROJECT NO. 1-V-0-21701-A-046-05		
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) U. S. Army Engineer Waterways Experiment Station Contract Report No. 3-165	
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		AD 820 778
11. SUPPLEMENTARY NOTES Conducted for U. S. Army Engineer Waterways Experiment Station, Corps of Engineers, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command
13. ABSTRACT The present investigation had two objectives. One was the development of an effective multipurpose dust palliative suitable for immediate use at advanced military bases. The other had the long-range aim of exploring several agents and techniques for treating soils at various military installations for dust abatement and increased trafficability. One of the main requirements for the first objective was the compliance with the limitation that the maximum amount to be applied should not exceed 3 pounds of material per square yard. Effectiveness with various soil types, low cost and ease of application were other stipulations. This report details the work performed and describes the results obtained. The primary short-range objective has been attained in that a product was developed which can be used in the present emergency and in compliance with the requirements of logistics, including the limitation of maximum amounts permissible. The product developed is a cationic emulsion of a solution of a thermoplastic polymer, a coumarone-indene resin, and a polar oil. The emulsion applied in the specified amount of 3 pounds per square yard provides effective protection against dust caused by air blasts as produced by aircraft, and against the effects of rain and of limited random traffic. Estimated product cost is within the range specified. The long-range objective has been accomplished to the extent that several systems were shown to give products useful in combating dust and increasing trafficability. Resinous systems, latex systems and bituminous systems were explored. One potentially useful approach to the long-range objective is to combine products of the resinous emulsion type with bituminous products compounded as compatible emulsions. KEYWORDS: Airfields; Dust control; Emulsions; Materials; Military roads		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Fairchild Hiller, Republic Aviation Division Farmingdale, Long Island, New York		Unclassified
		2b. GROUP
3. REPORT TITLE		
RESEARCH STUDY FOR THE DESIGN OF A PORTABLE VTOL BLAST CONTROLLING PLATFORM		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
W. M. Dervin R. S. Moss F. H. Ringler		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1967	94	12
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DACA 39-67-C-0003	Technical Report No. RA076R1000	
8. PROJECT NO.		
9.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
4.	U. S. Army Engineer Waterways Experiment Station Contract Report No. 3-166	
10. DISTRIBUTION STATEMENT		AD 818 913
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Conducted for U. S. Army Engineer Waterways Experiment Station, Corps of Engineers, Vicksburg, Miss.		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>The feasibility of the concept for a portable blast-diverting platform for vertical takeoff and landing (VTOL) aircraft was previously demonstrated by scale model tests. The platform would be assembled in the field from modules. Each module consists of a structural base containing air-deflector vanes and a load-bearing, gridded top. The platform would direct aircraft exhaust blast away from the aircraft and into the air to prevent terrain erosion, hot gas ingestion, adverse ground effects, and telltale "signature" generated by military activity. The present research study to develop a design concept for a full-scale portable modular platform included thermodynamic considerations, establishment of design criteria, a materials survey, and structural analyses. In the development of the design concept, ease of handling and field erection of the platform, minimization of special tooling, use of simplest manufacturing procedures, and cost savings in all areas were also considered. The study demonstrates that this type of modular platform can be designed for use with aircraft of various weights and engine exhaust characteristics.</p> <p>KEYWORDS: Blast resistant surfaces; Design; Exhaust blast; Vertical take-off and landing aircraft</p>		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 60, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Agricultural Aviation Engineering Company Santa Clara, Calif.		Unclassified
		2b. GROUP
3. REPORT TITLE		
DEVELOPMENT OF AERIAL DISPERSAL SYSTEM FOR RAPID LANDING SITE STABILIZATION		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
George S. Sanders		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1967	29	
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-eng-490		
8b. PROJECT NO.		
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
	AD 908 495L WES Contract Report No. 3-169	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; 31 December 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract with U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>An air-spray technique requirement existed for the stabilization of soil surfaces encountered in Army field operations. The UH-1B/D soil stabilization development program was undertaken for the purpose of developing and testing a new system to establish the feasibility of the aerial dispersal technique for this purpose. The effort conducted was directed in a conventional development pattern to achieve a system that would realistically validate the concept. In an intensive but short flight test program, utilizing an Army UH-1B helicopter as the test vehicle, both latex dust-alleviation material and a resinous aircraft-landing-site material were applied for the first time from an airborne vehicle. The flight tests achieved results of required flow rates and patterns and derived visual deposits of even distribution. The experimental system and its operation in the field environment served to validate the feasibility of the aerial dispersal concept for both dust-suppressant application and landing-site-fabrication missions. Based upon program results, a further applied engineering and development effort is justified to achieve a system for practical military use. A procedure for aerial dispersal system operation is included as appendix A.</p>		
KEYWORDS: Dust control; Landing fields; Materials; Soil stabilization		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Dynatech Corporation Cambridge, Massachusetts		Unclassified
		2b. GROUP
3. REPORT TITLE		
DEVELOPMENT OF UREA-BASED AND LATEX EMULSION SYSTEMS FOR DUST CONTROL IN SUPPORT OF MILITARY OPERATIONS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
Adrian R. Reti John E. Ehrreich Gerald B. Gilbert		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
January 1967	65	8
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-eng-484		
b. PROJECT NO.		
1-V-0-21701-A-046		
c. Task 05		
d.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) U. S. Army Engineer Waterways Experiment Station Contract Rpt No. 3-172	
10. DISTRIBUTION STATEMENT		
Distribution limited to U. S. Government agencies only; test and evaluation; 31 December 1971. Other requests for this document must be referred to U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 39180		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract with the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>This report presents the results of a program directed towards the development of materials for use by the military for dust control in the theater of operations. Criteria for defining the desirable properties of such dust control agents have been established, and materials which possess these properties have been procured, formulated, tested, and evaluated. The low material usage rates required (3 lbs per square yard or less) plus the variety of soils and soil conditions over which such dust control agents must be used preclude such treatments from adding to the load bearing capacity of the soil to any appreciable extent. The materials developed, therefore, are designed to be sprayed as liquids on the soil surface and produce coherent, highly flexible and extensible surface layers which effectively seal off the soil surface, preventing generation of dust. The flexible layers formed can withstand considerable deformation without failure. Because of their nature, these dust control agents serve to waterproof the soil as well. Several latex formulations have been developed which passed the laboratory screening tests and which show potential for military dust control purposes. A device has been developed for the simple application of these materials. Urea resin formulations were examined initially and determined to be generally ineffective, due primarily to their inability to withstand deformations of great enough magnitude. Subsequently, emphasis was directed toward synthetic and natural latex systems which show a greater potential.</p>		
KEYWORDS: Dust control; Emulsions; Materials; Military operations		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) The Western Company, Research Division 2201 N. Waterview Pkwy. Richardson, Texas		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE DEVELOPMENT OF A SOIL TREATMENT MATERIAL TO SERVE AS A DUST PALLIATIVE IN THE THEATER OF OPERATIONS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) James B. Dobbs Marie Hitchcock		
6. REPORT DATE October 1967	7a. TOTAL NO. OF PAGES 39	7b. NO. OF REFS 0
8a. CONTRACT OR GRANT NO. DA-22-079-eng-486		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1-V-0-21701-A-046-05		
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		U. S. Army Engineer Waterways Experiment Station Contract Report No. 3-174
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Conducted for U. S. Army Engineer Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT This report describes the efforts to develop a soil stabilizing additive which would serve as an effective dust palliative in the theater of operations. In the initial phase of the testing program a large number of soil treatment candidates were screened. To accomplish this, small specimens were prepared and observed. The most satisfactory of these candidates were evaluated by the WESSS-3 standard procedures designated "Tests for Screening of Proposed Dust-Control Materials." Two candidates were selected on the basis of their good performance for small scale pilot tests. One square yard specimens were prepared over various types of uncompacted clay and sand and exposed to weathering. A single candidate was selected for further testing. Full scale pilot plot tests were conducted with the fully developed product over compacted clay and loam under both summer and winter conditions. All specimens were then submitted to trafficability tests. A soil treatment material has been recommended which is a terpolymer blend of polyvinyl acetate, polyvinyl acrylates and internal plasticizers.		
KEYWORDS: Dust control; Materials; Military operations; Soil stabilization Traffic tests		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 56, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) Ashland Chemical Company Minneapolis, Minn.		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE RESEARCH STUDY ON SOIL TREATMENT MATERIALS FOR DUST PALLIATION, SOILS WATERPROOFING AND SOIL STRENGTHENING		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) C. N. Impola D. A. Olsen		
6. REPORT DATE November 1968	7a. TOTAL NO. OF PAGES 45	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-22-079-eng-437 8. PROJECT NO. 1-T-O-62103-A-046-05 c.	9a. ORIGINATOR'S REPORT NUMBER(S) 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 859 274L WES Contract Report S-68-5	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; 7 March 1972. Other requests for this document must be referred to U. S. Army Materiel Command.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command
13. ABSTRACT The object of this study was to evaluate various commercially-available resin systems, both organic and inorganic, to determine if they could be utilized as dust palliatives, soil waterproofing agents, and soil stabilizers. The screening tests revealed that many of the resin systems would perform as dust palliatives or soil waterproofing agents for nontraffic areas. However, none of these used on loose soil at the low use level of 3 lb/sq yd had enough strength or flexibility to perform satisfactorily under traffic. At two or three times this rate (6-9 lbs/sq yd), sufficient strength could be obtained with epoxy and unsaturated polyester resins to withstand some traffic. The emphasis was then changed to laboratory-synthesized urethane elastomers with over 2000% elongation and over 1000 psi tensile strength. When applied on loose sand, these elastomers gave a tough, flexible surface coating. Some problems with surface cracking were encountered on loose, dry clay, due to shrinkage. However, it was possible to eliminate or minimize these cracks by formulation changes of the elastomer and its curing agent, and by a very light prewetting of the soil with water. The discussion of the test results in the main body of the report is in chronological order. The Appendix covers the work done under the Physical Chemistry studies early in the contract period. KEYWORDS: Dust control; Elastomers; Epoxy resins; Materials; Resins (Synthetic); Resinous soil stabilization; Waterproofing (Soils)		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) Armour Industrial Chemical Company, Research Laboratory 8401 W. 47th Street McCook, Ill.		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE BITUMINOUS AND RESINOUS MATERIALS FOR DUST CONTROL		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) Robert D. Timmons		
6. REPORT DATE November 1968	7a. TOTAL NO. OF PAGES 55	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DA-22-079-eng-487 b. PROJECT NO. 1-T-O-62103-A-046-05 c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) U. S. Army Engineer Waterways Experiment Station Contract Report S-68-7 AD 857 645L	
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; 7 March 1972. Other requests for this document must be referred to U. S. Army Materiel Command.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT This report describes the laboratory investigation made to examine the effectiveness of selected materials, whose potential to satisfy the requirements set forth by the Department of the Army (DA) for a dust palliative were considered most desirable. The data reported herein does not include information that was obtained by the U.S. Army Engineer Waterways Experiment Station (WES) at Vicksburg, Miss. However, for purposes of clarity, reference will be made to some of the general data on samples that were considered for traffic testing by WES. This report includes all formulations that, on a laboratory level, met the criteria set by DA. Included are those formulations that indirectly contributed to and assisted in developing potential materials, and those that were rejected as not meeting the specifications. These basic systems were modified by altering the compounds to obtain the desired results: that is, little tack, reasonable elongation, water impermeability, and the ability in general to pass the standards set for an acceptable dust palliative. Of the systems evaluated, results indicated those which showed the most potential were the cationic resin-asphalt emulsions and the invert resin-asphalt cutback system. A formulation was developed using a cationic emulsifier that contained a blend of propane and vacuum-reduced asphalts along with neoprene rubber elastomer incorporated during manufacture. This product performed well when subjected to the air impingement, water erosion, and cure test. The invert cutback system that showed the highest potential was a propane asphalt-vinyl toluene blend. Although this product passed the laboratory phase testing well, field testing indicated that the elongation properties were inadequate.		
KEYWORDS: Bitumens; Dust control; Materials; Resins (Synthetic)		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Southwest Research Institute San Antonio, Texas		Unclassified
		2b. GROUP
3. REPORT TITLE		
THE USE OF SODIUM SILICATE AND SULPHUR AS A DUST PALLIATIVE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
E. J. Baker, Jr. William A. Mallow		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
May 1967	71	3
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
DA-22-079-eng-482		
9. PROJECT NO.		
1-V-O-21701-A-046-05		
10. DISTRIBUTION STATEMENT	9d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
Distribution limited to U. S. Government agencies only; test and evaluation; 7 March 1972. Other requests for this document must be referred to U. S. Army Materiel Command.	Contract Report S-69-1; AD 848 460L	
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY	
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.	U. S. Army Materiel Command	
13. ABSTRACT		
<p>This report covers the work performed in evaluating sodium silicate and sulphur based formulations for their use as dust palliatives. The results of the experimental work are herein presented. The conclusions drawn for each of these formulations are as follows: (1) Sodium silicate based formulations can be used as an efficient, inexpensive dust palliative when the silicate is sufficiently insolubilized to withstand normal weathering conditions, and a waterproof latex barrier is used to cover the base sodium silicate coating. (2) The sulphur based coatings have some very attractive features such as low cost and availability of materials, but the sulphur based coatings were not pursued to an end result because of the complications involved in applying the hot molten sulphur coatings.</p>		
KEYWORDS: Dust control; Materials		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified.)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Purdue University Lafayette, Indiana		Unclassified
3. REPORT TITLE		2b. GROUP
A THEORETICAL STUDY OF LANDING MAT BEHAVIOR		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (First name, middle initial, last name)		
M. E. Harr J. C. Rosner		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1969	148	70
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
DACA39-67-C-0044		
9. PROJECT NO.	9b. OTHER REPORT NO(S) (If by other numbers that may be assigned this report)	
1T062103A046		
c. Task 05	WES Contract Report S-69-7; AD A040 185	
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. DISTRIBUTION STATEMENT
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		U. S. Army Materiel Command Washington, D. C. 20314
13. ABSTRACT		
<p>Mechanistic models are developed to help predict the behavior of landing mat systems. The first model, which is based upon elastic theory, is capable of duplicating the action of such systems under static loads. The associated assumptions are: (1) that an infinite beam is the structural equivalent of the mat; (2) that the subgrade is homogeneous; (3) that horizontal displacements within the subgrade are negligible; and (4) that the mat always remains in contact with the subgrade. The model parameters are established from simulations of full-scale experimental tests. These parameters are also correlated with prototype test variables.</p>		
KEYWORDS: Landing mats; Prototype tests; Simulation		

DD FORM 1473
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 65, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Wilson, Nuttall, Raimond Engineers, Inc. Chestertown, Maryland		Unclassified
		2b. GROUP
3. REPORT TITLE		
A COST EFFECTIVENESS STUDY OF PREFABRICATED MEMBRANE SURFACINGS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
W. C. Grenke C. J. Nuttall, Jr.		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1970	229	22
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
DACA 39-69-C-0021		
b. PROJECT NO.		
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		U. S. Army Engineer Waterways Experiment Station Contract Report S-70-1
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited. AD 756 361		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		U. S. Army Materiel Command; Research, Development and Engineering Directorate, Ground Mobility Division; Washington, D. C.
13. ABSTRACT		
<p>Results are presented on a cost effectiveness study of expedient prefabricated membrane surfacings for use on military airfields in theaters of operations. The purpose of the study was to provide a basis for deciding whether to develop a family of membranes of various weights, or a single membrane of optimum weight to meet requirements set forth in a Department of the Army Approved Qualitative Materiel Requirement. Existing data and experience were collected, criteria for membrane effectiveness were developed, and important parameters identified. Models were developed for theaters of operation, performance, cost and effectiveness. A trade-off analysis, cost-effectiveness study, and membrane development plan are presented. The principal conclusion is that it is desirable to develop a family of membranes consisting of heavy, medium, and light duty classes for airfield traffic areas. It is recommended that development continue on the three-membrane system for traffic areas as outlined in the text. It is also recommended that research and development begin on an extra-light duty membrane for use on non-traffic areas and beneath landing mats.</p>		
KEYWORDS: Airfields; Cost analysis; Prefabricated membranes		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) DYNATECH CORPORATION 17 Tudor Street Cambridge, Mass. 02139		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE LATEX SYSTEMS FOR DUST CONTROL IN SUPPORT OF MILITARY OPERATIONS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) FINAL REPORT		
5. AUTHOR(S) (Last name, first name, initial) Peti, Adrian R. Ehrreich, John E. Wentworth, Ralph L.		
6. REPORT DATE July 1970	7a. TOTAL NO. OF PAGES xi + 57	7b. NO. OF REFS 4
8a. CONTRACT OR GRANT NO. DA-22-079-eng-484 b. PROJECT NO. 1-V-0-21701-A-046 c. Task 05 d.	9a. ORIGINATOR'S REPORT NUMBER(S) 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD 873 344 WES Contract Report S-70-4	
10. AVAILABILITY/LIMITATION NOTICES Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract with the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT This report presents the results of a phase of a program to develop latex-based compounds for use as dust-control agents in military operations. Both synthetic polymer emulsions and natural rubber latex have been investigated for their suitability in preparing dust-suppressant soil coatings by spray application to the soil. Special emphasis was placed on the development of formulations based on natural rubber latex because of the potential availability of this material in the Southeast Asia theater of operations. The synthetic polymer emulsion systems evaluated included vinyl emulsions, acrylic emulsions, nitrile and polychloroprene rubbers, and a polyurethane resin emulsion. Among these materials a compounded neoprene 650 of good strength and extensibility furnished a formulation notably resistant to degradation on outdoor exposure. A broad range of curing agents and anti-oxidants for compounding natural rubber latex were investigated. These additives were evaluated by determining their effect on the strength and elongation of soil coatings, the resistance of the coatings to outdoor aging, and the viscosity of the latex compound after storage. Outdoor aging tests in Massachusetts were supplemented by accelerated aging tests involving exposure to elevated temperature and ultraviolet radiation. The effects of soil-coating thickness, application to inclined surfaces, and prior treatment of soil with penetrating material were investigated. An analysis was made of the stresses imposed on soil coatings by aircraft propeller blast. A soil-coating formulation based on natural rubber latex and developed early in the program was subjected to field trials at Yuma Proving Group. This coating in unmodified form and reinforced with glass fibers withstood propeller blast tests but developed a tacky surface on continued exposure. KEYWORDS: Dust control; Emulsions; Materials; Military operations; Rubber		

DD FORM 1 JAN 64 1473

UNCLASSIFIED

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
The Dow Chemical Company Midland, Michigan		Unclassified	
3. REPORT TITLE		2b. GROUP	
RESEARCH STUDY FOR THE DESIGN, DEVELOPMENT, FABRICATION AND DELIVERY OF HEAVY DUTY LANDING MAT			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final report			
5. AUTHOR(S) (First name, middle initial, last name)			
G. Keith Glaza			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS	
March 1971	29	None	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
DACA39-69-C-0014 (Neg)			
9. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10664717DH01-10		AD 882 170L	
c.		U. S. Army Engineer Waterways Experiment Station	
d.		Contract Report S-71-1	
10. DISTRIBUTION STATEMENT			
Distribution limited to U. S. Government agencies only; test and evaluation; 16 March 1973. Other requests for this document must be referred to U. S. Army Materiel Command, Washington, D. C.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.		U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT			
<p>An extruded 6061-T6 aluminum alloy heavy duty landing mat was developed and test hardware delivered to the U. S. Army Engineer Waterways Experiment Station at Vicksburg, Mississippi. Roll and other engineer design tests conducted by WES have established the ability of the mat to provide the physical and performance characteristics of a heavy duty mat as defined by the "Revised Department of the Army Approved Qualitative Materiel Requirement for Prefabricated Airfield Surfacing" issued 2 April 1968. The internal geometry of the mat extrusion consists of a number of joined hollow triangles. This is a major departure from the multirectangular cavity type of extrusion used in the manufacture of the AM2 and XM18 series of mats. When tested on a laboratory roll test machine, approximately thirteen times as many cycles of an equal wheel load were required to fail 1.5 in. wide transverse "slices" of the final truss web extrusion as were required to fail equal width "slices" of the approximately equal weight multirectangular cavity Heavy Duty Mat B extrusion. Under equal rolling wheel loads, the truss web extrusion accommodated 36 to 59 times the number of cycles that were accommodated by the original AM2 mat extrusion. Approximately two times the wheel load required to fail the Heavy Duty Mat B extrusion at any number of cycles was required to fail the truss web extrusion under the same number of cycles. For the same number of cycles, the truss web extrusion carried approximately two and one half times the load required to fail the AM2 mat extrusion. When tested as a simple beam under a concentrated static load applied at mid-span, 1.5 in. wide transverse "slices" of the truss web extrusion supported an approximately 46 percent greater load than the approximately equal weight rectangular cavity Heavy Duty Mat B extrusion. Under equal loads the deflection of the truss web extrusion ranged from one-quarter to one-third of the deflection of the Heavy Duty Mat B extrusion. The high single wheel loads that must be supported by a heavy duty mat, 50,000 lb vs 27,000 lbs for AM2 and 25,000 lb for XM18, required the development of new end connector and locking bar extrusions. The mat developed and supplied as the result of the work described in this report has passed all of the engineer design tests required to qualify for further consideration as a heavy duty mat. Tests conducted and passed are: (a) 1000 coverage traffic test, (b) 5 arresting hook impacts, (c) 20 arresting cable roll over loadings, (d) 10 second 7000°F afterburner blast, (e) 0.4 to 0.7 coefficient of friction braking surface range, and (f) 250 sq ft per man-hour minimum installation speed. Category E Form I (identical procurement) product drawings have been prepared and delivered to the U. S. Army Engineer Waterways Experiment Station.</p>			
KEYWORDS: Aluminum landing mats; Extrusions (Landing mats; Heavy duty landing mats)			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author) Western Company of North America, Research Division Richardson, Texas		2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE EVALUATION OF POLYMER EMULSIONS TO SERVE AS SOIL TREATMENTS FOR DUST CONTROL		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) Jack B. Hammond		
6. REPORT DATE March 1971	7a. TOTAL NO. OF PAGES 45	7b. NO. OF REFS 0
8a. CONTRACT OR GRANT NO. DACA-39-70-C-0012		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 1G664717DH01-12		
c.		
d.		
10. DISTRIBUTION STATEMENT Distribution limited to U. S. Government agencies only; test and evaluation; 12 December 1972. Other requests for this document must be referred to U. S. Army Materiel Command, ATTN: AMCRD-GM.		AD 722 795L
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Mississippi		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT This report describes research work conducted to develop an improved polyvinyl acetate (PVA) polymer emulsion. Various manufacturers were contacted for information, recommendations, and samples of basic PVA systems. Some systems were modified with various additives. Tests were conducted on both modified and unmodified samples. These tests included determination of physical properties with particular emphasis placed on toughness. Environmental tests included exposure to ultraviolet light and water spray, soil bacteria, and fungi and heat aging. Modifications studied included viscosity, plasticizers, and fungicides. The above data were analyzed and six of the most promising formulations were submitted to the U. S. Army Engineer Waterways Experiment Station (WES) for evaluation. Laboratory screening tests and weathering tests were performed on these materials at the WES. The WES completed evaluation of the formulations and requested that procurement specifications for formulation 034001B be prepared. Procurement specifications were prepared using analysis of the 034001B test data. The specifications contain both physical and chemical properties of this material.		
KEYWORDS: Dust control; Emulsions; Materials; Polymers		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<small>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</small>		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Booz-Allen Applied Research Inc. Bethesda, Maryland		Unclassified
		2b. GROUP
3. REPORT TITLE		
FINAL REPORT, COST-EFFECTIVENESS STUDY OF PREFABRICATED AIRPLANE LANDING MATS		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
G. R. Bierman C. T. deLorimier K. Behari		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
August 1971	218	13
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
DACA39-70-C-C010		
b. PROJECT NO.		
		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
		AD 756 172
		WES Contract Report S-71-3
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT		
<p>Results are presented of a Cost-Effectiveness Study to determine the expedient airfield surfacing systems required in a theater of operations during the 1970-75 time frame to support the U. S. air mobility concepts, and to meet the Army approved Qualitative Materiel Requirements (QMR) for prefabricated airfield surfacings. Available data were used to develop the theater of operations scenario, airfield and aircraft mixes, traffic rates, and landing mat cost and performance information. Models were developed to measure the cost and effectiveness of hypothetical mats, as described in the QMR, and of existing mats currently in the inventory or under development. The results of the analysis are presented as recommendations in a Landing Mat Development Plan. As a result of the findings and conclusions, it was recommended that: the current requirement for a landing mat family consisting of three duty classifications (heavy, medium, and light) be discontinued and replaced by requirements for one landing mat system to surface tactical airfield and another for all logistics support airfields; since the current Truss-Web and XML9 systems meet the essential QMR specifications, they should be type classified as standard A items of the two family system for the 1970-75 time frame; and integrally water-proofed landing mats should be developed in order to provide the most cost-effective systems.</p>		
KEYWORDS: Aircraft landing areas; Cost analysis, Landing mats; Prefabricated surfacings		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Globe Albany Corporation Buffalo, New York		Unclassified
		2b. GROUP
3. REPORT TITLE		
RESEARCH AND DEVELOPMENT OF PREFABRICATED AIRFIELD AND ROAD SURFACING MEMBRANE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final report		
5. AUTHOR(S) (First name, middle initial, last name)		
George C. Pedersen		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September 1971	186	0
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)
DACA39-68-C-0003		
b. PROJECT NO		
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.		AD 756 180
		WES Contract Report S-71-7
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT The U. S. Army desires an effective means for establishing an airfield or roadway without the expenditure of time necessary when conventional means are used. Where soil conditions permit the bare ground can be covered with a coated fabric called "Prefabricated Airfield and Road Surfacing Membrane." A research and development contract was negotiated between the U. S. Army Engineer Waterways Experiment Station (WES) and the Industrial Fabrics Division of Albany Felt Co., Albany, N. Y., for the purpose of developing a superior membrane for this purpose. Since the inception of this contract, the name of Albany Felt Co. has been changed to Albany International Corp., and the Industrial Fabrics division has become part of its wholly-owned subsidiary, Globe Albany Corporation, Buffalo, N. Y. Under this contract (No. DACA39-68-C-0003, as modified), a fundamental approach to the very wide range of options was taken. Because of this approach we were not limited to available fabric constructions or rubber compounds. We were thus able to consider the use of all the fibers and polymers that were available. For the production of the fabrics, we considered fiber performance, yarn construction, weave construction for grab and tear strength, flexibility, winding equipment, dressing equipment, loom requirements, and selvage requirements. The final fabric product is clearly superior to any fabric heretofore available and is substantially different from any fabric available at the beginning of this work. For the designation of the rubber compound, the commercially available polymers were screened and all promising materials were investigated in their available forms. The optimum material, a neoprene latex, was chosen. To properly optimize the performance of the membrane, the rubber must be prepared with additives. Some of the rubber considerations were: toughness, abrasion resistance, self-extinguishability, fiber wettability, penetration of the fabric, bonding to the base fabric, high strength adhesive joints, flexibility, U. V. resistance, jet-fuel resistance, and temperature resistance. The final membrane sample used one basic rubber with three different levels of binding additive. The final rubber combination is satisfactory in all respects; however, further improvements are possible. It was found that priming of the fabric to promote rubber bonding is mandatory for a suitable material to be developed. For the combination of fabric, primer, and rubber to yield a satisfactory membrane material, many manufacturing variables were considered. Techniques were developed for this purpose.		
KEYWORDS: Adhesives; Expedient surfacings; Fabrics; Prefabricated membranes; Rubber		

DD FORM 1473
1 NOV 66

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
Union Carbide Corporation Tarrytown, New York		Unclassified	
3. REPORT TITLE		2b. GROUP	
DEVELOPMENT OF AN IMPROVED DUST-CONTROL SYSTEM BASED ON POLYVINYL ACETATE LATEX			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Final report			
5. AUTHOR(S) (First name, middle initial, last name)			
D. F. Anderson J. A. Durante L. H. Wartman			
6. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
October 1971		53	None
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
DACA 39-70-C-0011			
8b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
		U. S. Army Engineer Waterways Experiment Station Contract Report S-71-9 AD 732 484	
10. DISTRIBUTION STATEMENT			
Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi		U. S. Army Materiel Command Washington, D. C.	
13. ABSTRACT			
<p>While dusting and the formation of dust clouds have always been significant factors in military operations, the advent of modern large-scale airborne tactics has transformed what was once primarily an annoyance to a costly and serious problem because dust ingestion into moving parts of aircraft accelerates wear, resulting in increased maintenance time and reduced operational availability. The U. S. Army Engineer Waterways Experiment Station (WES) has undertaken the task of finding methods for suppressing dust. One of the systems developed employs DCA-70, a commercial dust-control agent manufactured by Union Carbide Corporation. The DCA-70 is sprayed on a graded soil surface where it forms a continuous film, anchored to the substrate, with good resistance to damage by air blasts and vehicular traffic. DCA-70 is a polyvinyl acetate latex compounded with dibutyl phthalate at a concentration of 10% of the contained solids in the latex. The dibutyl phthalate acts as a plasticizer, making films cast from the latex more pliable and resistant to rupture. Films cast from DCA-70 are very resistant to deterioration by the actinic radiation in sunlight and hence, the outdoor-life expectancy of stabilized soils would be expected to be good. However, because the dibutyl phthalate is quite volatile, it evaporates in hot climates resulting in decreased resiliency and strength. Since many commercial plasticizers of much lower volatility than dibutyl phthalate are available, a program was undertaken to find a plasticizer system which could be substituted for the dibutyl phthalate to yield a product with better aging characteristics. In Phase I of this project more than thirteen plasticizers were tested for compatibility with the polyvinyl acetate latex used in the manufacture of DCA-70. Those plasticizers which showed the most promise in the initial screening evaluation were selected for further trials involving preparation of laboratory latex samples, casting of films, and measurement of tensile properties both before and after oven aging and water extraction tests. As expected, all the products made with low volatility plasticizers retained their tensile properties much better than DCA-70. On the basis of the test results six formulations were selected for preparation of 110-gallon quantities and field evaluation by WES. Their evaluation has resulted in the elimination of four of these formulations from consideration. A selection remains to be made between the two remaining candidates, both of which are made with a mixed system containing FLEXOL 4-GO and Santicizer 140, but in different concentrations. WES evaluation confirms that the modified versions are superior to DCA-70. In Phase II of this project study, nine specification test methods, most of which are standard ASTM procedures for latex products, were applied to various commercial polyvinyl acetate latexes after addition of plasticizers using the formulations developed in Phase I of the contract research. Comparison of the data obtained with those attributes expected to be of importance for good performance in dust-control applications leads to a set of tentative specification values which should allow procurement of these products on a competitive basis. The tests used are tensile properties of films, total solids, surface tension, pH, viscosity, filterable solids, salt tolerance, storage stability at 140 F, and shear stability.</p>			
KEYWORDS: Chemical soil stabilization; Dust control; Emulsions; Materials; Rubber			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) The Dow Chemical Company Midland, Mich.		2a. REPORT SECURITY CLASSIFICATION Unclassified
		2b. GROUP
3. REPORT TITLE RESEARCH STUDY FOR THE DESIGN, DEVELOPMENT, FABRICATION, AND DELIVERY OF TRUSS WEB HEAVY DUTY LANDING MAT WITH INTEGRAL WATERPROOFING		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final report		
5. AUTHOR(S) (First name, middle initial, last name) G. Keith Glaza		
6. REPORT DATE May 1974	7a. TOTAL NO. OF PAGES 21	7b. NO. OF REFS 1
8a. CONTRACT OR GRANT NO. DACA39-72-C-0003 (Neg)		9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 17162112A131		
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) U. S. Army Engineer Waterways Ex- periment Station Contract Report S-74-1
d.		
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES Prepared under contract for U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.		12. SPONSORING MILITARY ACTIVITY U. S. Army Materiel Command Washington, D. C.
13. ABSTRACT An integral waterproofing system was developed for the extruded aluminum truss web heavy duty mat and a roll test quantity of mat equipped with the system de- livered to the U. S. Army Engineer Waterways Experiment Station at Vicksburg, Miss. The male-female side joint is sealed by an extruded neoprene, multi-cavity, hollow, compression type seal. The hinged lever closing action of this joint is used to com- press the seal. An enlarged "dog bone" type of locking bar, with identical cavities for containing seals extruded into each of its two horizontal sides, provides the means for conveniently and quickly sealing the joints between adjacent end connectors. Locking bar seals are extruded neoprene, in a multi-cavity, hollow, compression type of design. Locking bars are "loaded" with compressed seals prior to delivery to the field. After locking bars are installed, seals are permitted to expand by removing the retaining strips that have confined the seals in a compressed condition. Mat fe- male corners are sealed by direct abutment of locking bar seal ends against the con- tinuous side seal of the adjacent mat. Mat male corners are sealed by installing a molded neoprene combination cap and plug over the protruding end of the installed locking bar. The most advantageous features of the sealing system are believed to be laying speed and economy. The system can be readily adapted to other types of mats such as XM-18, XM-19, AM-2, and the new 48" x 55-1/2" truss web C-5A mat. Reproducible original drawings adequate for the procurement of additional mats identical to the roll test mats have been prepared and delivered to the WES.		
KEYWORDS: Aluminum landing mats; Extrusions (Landing mats); Heavy duty landing mats; Materials; Sealers; Waterproofing		

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.Unclassified
Security Classification

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Contract Report S-75-3	2. GOVT ACCESSION NO. AD A015 021	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MODEL STUDY OF C-5A LANDINGS ON DOW TRUSS WEB LANDING MAT		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Fred W. Kiefer Paul T. Blotter Vance T. Christiansen		8. CONTRACT OR GRANT NUMBER(s) USAF/AFWL Contract No. F29601-73-C-0131
9. PERFORMING ORGANIZATION NAME AND ADDRESS Utah State University College of Engineering Logan, Utah 84321		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS USAF/AFWL Project No. 683M; USAMC Project No. 1T162112A131
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Air Force Weapons Laboratory, Kirtland AFB, N. Mex. 87117; and U. S. Army Materiel Command, Alexandria, Va. 22333		12. REPORT DATE August 1975
		13. NUMBER OF PAGES 92
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) U. S. Air Force Weapons Laboratory (DE2), Civil Engineering Research Division, Kirtland Air Force Base, N. Mex. 87117; and U. S. Army Engineer Waterways Experiment Station, Soils and Pavements Laboratory, P. O. Box 631, Vicksburg, Miss. 39180		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Aluminum landing mats Extrusions (Landing mats) Scale models [Dow truss web landing mat]		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A series of model C-5A landing tests on 4 by 4.5 ft. and 2 by 9 ft. Dow truss web landing mat runways were studied using a 1/7 scale physical model. Model landing mat units were constructed of extruded aluminum joint edges bonded to a foam core fiber glass panel. Simulated landings were made on 14.5 by 128 ft. mat runways. The model 4 by 4.5 ft. mats were tested in four runway laying pat- terns. Laying patterns without a transverse hinged joint formed the most stable runway. When laid in the standard brick pattern with a transverse (Continued)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

hinged joint, the 4 by 4.5 ft. mat runway was more stable than the 2 by 9 ft. mat runway. The 2 by 9 ft. mat runways were tested only in the standard brick pattern. Restraint at the runway edge did not prevent buckling of the 2 by 9 ft. mat runway in the standard brick pattern. Tension anchors at the touchdown end of the runway controlled the longitudinal displacement and prevented buckling of both mat types when laid in the standard brick pattern. The use of end anchorage appears to be a practical method to reduce mat runway maintenance and prevent buckling failure.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Technical Report Documentation Page

1. Report No. Contract Report S-75-6 (FAA-RD-75-209)		2. Government Accession No. AD A018 800		3. Recipient's Catalog No.	
4. Title and Subtitle STATE-OF-THE-ART IN VARIABILITY OF MATERIAL PROPERTIES FOR AIRPORT PAVEMENT SYSTEMS				5. Report Date August 1975	
7. Author(s) Thomas W. Kennedy, W. Ronald Hudson, B. F. McCullough				6. Performing Organization Code	
9. Performing Organization Name and Address ARE, Inc. Engineering Consultants 5706 Bee Cave Road Austin, Tex. 78746				8. Performing Organization Report No.	
12. Sponsoring Agency Name and Address U. S. Department of Transportation Federal Aviation Administration, Washington, D. C. Department of Defense, Office, Chief of Engineers, Washington, D. C.				10. Work Unit No. (TRIS)	
				11. Contract or Grant No. FA73WAI-377	
				13. Type of Report and Period Covered Final Jul 1974 - Jan 1975	
15. Supplementary Notes Prepared for the U. S. Army Engineer Waterways Experiment Station, Soils and Pavements Laboratory, Vicksburg, Miss. 39180				14. Sponsoring Agency Code ARD-430	
16. Abstract This report describes and discusses types and distributions of variability, including how material properties variation can be determined and evaluated. The main body of the report presents a summary of the variational characteristics of pavement materials properties for those materials which are currently used in pavement design. The materials discussed are portland cement concrete, asphalt concrete, blackbase and asphalt-treated materials, cement-treated materials, lime-treated materials, and untreated subgrade soils. An attempt is made to summarize the variational characteristics which can be expected for each material for as-built service conditions in pavements.					
17. Key Words Materials Pavements Reliability State of the art studies			18. Distribution Statement Approved for public release; distribution unlimited.		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 84	22. Price

Technical Report Documentation Page

1. Report No. Contract Report S-75-7 (FAA-RD-75-207)		2. Government Accession No. AD A018 904		3. Recipient's Catalog No.	
4. Title and Subtitle STATE-OF-THE-ART IN PREDICTING PAVEMENT RELIABILITY FROM INPUT VARIABILITY		5. Report Date August 1975		6. Performing Organization Code	
7. Author(s) W. Ronald Hudson		8. Performing Organization Report No.		9. Performing Organization Name and Address Dr. W. Ronald Hudson Consulting Engineer Austin, Tex. 78746	
10. Work Unit No. (TRAIS)		11. Contract or Grant No. FA73WAI-377		12. Sponsoring Agency Name and Address U. S. Department of Transportation, Federal Aviation Administration, Washington, D. C. Department of Defense, Office, Chief of Engineers, Washington, D. C.	
13. Type of Report and Period Covered Final Sep 1974 - Jan 1975		14. Sponsoring Agency Code		15. Supplementary Notes Prepared for the U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory, Vicksburg, Miss. 39180	
16. Abstract This report describes and discusses the concept of reliability in pavement design. Some designers refer rather to "design confidence level" or even in an older sense to increased design safety factors. The report covers the improvement of pavement design and the fact that "pavement management systems" methodologies provide an ideal framework for considering reliability. Consideration is given to three techniques for reducing variability in design: (1) improved quality control, (2) use of design confidence level, and (3) the concept of reliability level. The study shows that pioneers in realistic use of reliability in design include Kher, Lemer, Mcavenzadeh and Darter. The philosophy of determining and corroborating reliability levels is discussed and recommendations for work to advance the state-of-the-art are presented.					
17. Key Words Materials Pavement design Pavements Reliability State of the art studies			18. Distribution Statement Approved for public release; distribution unlimited.		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 72	
22. Price					

Technical Report Documentation Page

1. Report No. Contract Report S-75-8 (FAA-RD-75-183)	2. Government Accession No. AD A018 681	3. Recipient's Catalog No.	
4. Title and Subtitle STATE-OF-THE-ART FOR PREDICTION OF PAVEMENT RESPONSE		5. Report Date October 1975	
		6. Performing Organization Code	
7. Author(s) John E. Crawford and Michael G. Katona		8. Performing Organization Report No.	
9. Performing Organization Name and Address Civil Engineering Laboratory Naval Construction Battalion Center Port Hueneme, Calif. 93043		10. Work Unit No. (TRIS)	
		11. Contract or Grant No. FA73WAI-377	
12. Sponsoring Agency Name and Address U. S. Department of Transportation, Federal Aviation Administration, Washington, D. C. Department of Defense, Office, Chief of Engineers, Washington, D. C.		13. Type of Report and Period Covered Final report August 1974 - September 1975	
		14. Sponsoring Agency Code ARD-430	
15. Supplementary Notes Prepared for the U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory, Vicksburg, Miss. 39180			
16. Abstract <p>This report focuses on the finite element idealization as related to principles of pavement analysis, while other techniques and topics are introduced to provide a complete picture. The topics presented are organized to illustrate the similarities and consequences of using various prediction techniques. These topics include: the theoretical basis of the principal techniques, material models, comparison of analytical and measured results, and the selection of a prediction technique.</p>			
17. Key Words Materials Pavement design Pavements Performance predictions State of the art studies		18. Distribution Statement Approved for public release; distribution unlimited.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 77	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Contract Report S-76-11	2. GOVT ACCESSION NO. AD A030 806	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) DATA COLLECTION AND ANALYSIS, RUNWAY 4R-22L, O'HARE INTERNATIONAL AIRPORT		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Harvey J. Treybig, Harold L. Von Quintus, and B. Frank McCullough		8. CONTRACT OR GRANT NUMBER(s) Contract DACW39-75-C-0090
9. PERFORMING ORGANIZATION NAME AND ADDRESS Austin Research Engineers, Inc. Engineering Consultants 5706 Bee Cave Road, Austin, Texas 78746		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20591		12. REPORT DATE September 1976
		13. NUMBER OF PAGES 178
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Data collection Rigid pavement design (Airfields) Data processing Runways Overlays (Pavements) [O'Hare International Airport] Reinforced concrete		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report documents and discusses data obtained from field studies of continuously reinforced concrete (CRC) airfield pavement. It includes a discussion and analysis of deflection measurements, material properties, traffic distribution, climatological data, and the pavement's physical condition, as they pertain to the design of CRC pavements and overlays. A comparison is presented between predicted characteristics, developed using the design procedures for CRC pavement, and actual observations made on Runway 4R-22L at (continued)		

DD FORM 1473 JAN 73 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. ABSTRACT (continued).

O'Hare International Airport. A summary of the analysis is presented which includes conclusions concerning components of the design procedure and a list of recommendations for future revisions and additions to the procedure. Every attempt was made to summarize and establish the initial behavior and performance data of Runway 4R-22L, so that it can be used in future performance studies of CRC airfield pavements.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Contract Report S-76-12	2. GOVT ACCESSION NO. AD A029 422	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) CLIMATIC EFFECTS ON AIRPORT PAVEMENT SYSTEMS; STATE OF THE ART		5. TYPE OF REPORT & PERIOD COVERED Final report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Barry J. Dempsey		8. CONTRACT OR GRANT NUMBER(s) DACW39-75-M-1651
9. PERFORMING ORGANIZATION NAME AND ADDRESS Barry J. Dempsey Consulting Engineer Urbana, Illinois		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, Washington, D. C. 20314, and Federal Aviation Administration, Washington, D. C. 20591		12. REPORT DATE June 1976
		13. NUMBER OF PAGES 317
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Also published as Report No. FAA-RD-75-196, under Inter-Agency Agreement No. FA73WAI-377		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Airports Climatology Pavement design State of the art studies		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This state-of-the-art report reviews the climatic parameters important to airport pavement design, the methodology by which climatic parameters are used to predict pavement design parameters, and the methodology by which climatic parameters are incorporated into design procedures. Methods for predicting temperature and moisture conditions in the pave- ment system are discussed. Also the pavement distresses which result from (Continued)		

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

temperature and moisture effects are reviewed. The report includes a comprehensive discussion of the methodology for assessing the influence of climatic parameters on the properties of the airport pavement materials.

Probabilistic procedures for evaluating the influence of climate on pavement systems are described.

In conclusion, a brief summary of methodologies which could be used to include climatic parameters in airport pavement design is presented.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Contract Report S-76-15, Volume I	2. GOVT ACCESSION NO. AD A035 873	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PAVEMENT PERFORMANCE MODELS; REPEATED LOAD FRACTURE OF PAVEMENT SYSTEMS		5. TYPE OF REPORT & PERIOD COVERED Volume I of a two-volume report
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Matthew W. Witeczak		8. CONTRACT OR GRANT NUMBER(s) FAA DOT-FA73WAI-377 Mod. No. 2 FAA-ER-430-002b
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Soils and Pavements Laboratory P. O. Box 631, Vicksburg, Miss. 39180		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office, Chief of Engineers, U. S. Army, Washington, D. C. 20314 and Federal Aviation Administration, Washington, D. C. 20591		12. REPORT DATE August 1976
		13. NUMBER OF PAGES 197
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Also published as Federal Aviation Administration Report FAA-RD-75-227-I.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Cracking (fracturing) Pavements Fatigue (materials) State of the art studies Loads (forces) Models		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report volume presents a state of the art for fatigue cracking of pavement systems. The report deals with prior research relating to the fatigue of asphalt concrete, asphalt emulsions, cement-modified emulsions, lime-treated material, lime fly ash, lime cement fly ash mixes, cement-treated material, and portland cement concrete. A comprehensive summary touching upon laboratory test procedures, test methods, influence of mix factors upon fatigue, generation of typical fatigue curves, development of fatigue fracture subsystems, and verification studies is presented. (Continued)		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

The state of the art is summarized and qualitatively rated relative to eleven different features felt to be necessary for the development of a fatigue subsystem. In addition, this summary formed the basis for recommendations dealing with future research on fatigue. The basis of the fatigue subsystem is formulated upon the concept that any such methodology proposed for fracture distress must ultimately be founded upon a functional pavement failure.

Accordingly, the major results for future research, regardless of material type, appear to be focused upon the development of a distress-to-performance model that can be accurately used in pavement design and management systems. In addition, the development of a probabilistic fatigue methodology is likewise considered to be a major research area. Finally, while several laboratory-type research studies are recommended, it is suggested that most of the research effort be devoted to field performance verification studies using the wealth of existing knowledge already available.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)